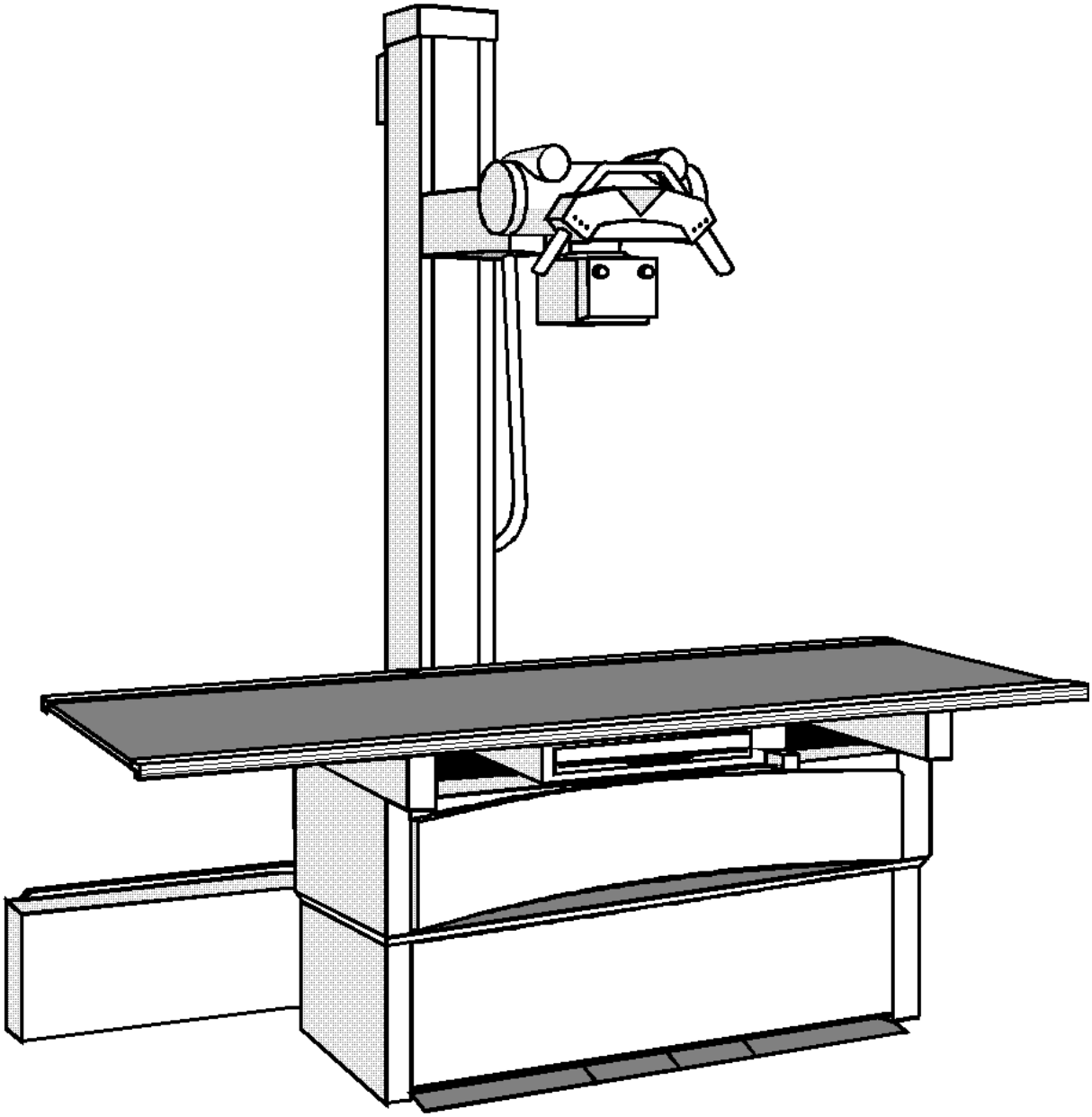
Mounting Instructions COMBI ELEVATOR-2



CE 0125

English Edition

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TABLE OF CONTENTS ***Page***

1. Specification

1.1 General safety notes 3
1.2 Compatibility 3
1.3 Climatic conditions 3
1.4 Dimensions and weights 3
1.5 Component Designation 4
1.6 Dimensional Drawings 5
1.7 Dimensional Drawings/Floor Mounting 6
1.8 Installation of high tension cables 7
1.9 Constructional preparations 7
1.10 Measuring device 7
1.11 Special tools 7
1.12 Power supply data 7
1.13 Schematics 8
1.14 Table of contents at Schematics 8
1.15 Wiring Diagram 9
1.16 Component Numbers and Designation 15

2. Mounting of Unit

2.1 Preparation of fastening 19
2.2 Unpack equipment parts 19
2.3 Assembly of the table and rail stand 21
2.4 Assembly of column stand 22
2.5 Assembly of Bucky 23
2.6 Assembly of table top 24
2.6.1 Assembly of table top in small rooms 25
2.7 Assembly of X-ray tube and collimator 25
2.8 Assembly of X-ray supporting arm 26
2.9 Assembly of X-ray tube to X-ray supporting arm 27
2.10 Assembly of control arm 29
2.11 Assembly and connection of cable 29
2.12 Counterbalance of column 29
2.13 Function description 30
2.14 Assembly of covers 30
2.15 Assembly of rail stand 31

3. Adjustment

3.1 Adjustment of the column vertical 32
3.2 Adjustment of the column turning direction 32
3.3 Adjustment of the rotation axis 33
3.4 Adjustment of rotation catch 33
3.5 Adjustment of the Bucky in table transverse movement 33
3.6 Adjustment of vertical SID switch 34
3.7 Exposure height 34
3.8 Table height control electronics 35
3.9 Centering of Bucky in transverse direction 36

4. Technical Maintenance

4.1 Mechanical and Electrical Tests 37
4.2 Functions Tests 46
4.3 Spare Parts 48
4.4 Spare Parts List 53
4.5 Maintenance Documentation 58
4.6 Maintenance Certificate 58

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1. Technical data

1.1 General safety notes

The electrical installation shall conform to all mandated laws and regulations.
Check the installation layout plan.
During the installation it is important to check that all protective ground wire connections provided by the manufacturer are properly made before the equipment is started up.
The protective ground wires between the individual system components and the power supply shall to be connected as shown in the wiring diagram.
Regulation of professional associations concerning safety and accident prevention shall be observed. No work may be performed on parts carrying a voltage higher than 42 V. If it is necessary to turn on the power for execution of movements of the equipment in the course of installation procedure, it must be shut down immediately after completion of these movements.

1.2 Compatibility

This mounting instruction is valid for COMBI ELEVATOR-2 all versions.
The table accommodates all standard dimensions in trade Bucky systems.
A Bucky Wall stand can be installed on the right or left side of the table depending on the user side.

1.3 Climatic conditions

During regular work:

Temperature:	10° C to 40° C
Humidity:	20% to 80%
Air pressure:	700 hPA to 1100 hPa

During transport:

Temperature:	-25° C to 70° C
Humidity:	5% to 95%
Air pressure:	600 hPA to 100 h PA

1.4 Dimensions and weights

of components	Dimensions of components	Weights
Table	1400x770x750 mm	230 kg
Table top	2200x810x 40 mm	35 kg
Column	2320x470x302 mm	155 kg
Rail stand	2250x183x302 mm	80 kg
Tube stand with vertical carriage	600x500x200 mm	32 kg

of packing case	Dimensions of cases	Weights
Table	1530x860x810 mm	265 kg
Table top	2320x930x200 mm	56 kg
Column		
Rail stand	2400x780x760 mm	385 kg
Tube stand with vertical carriage		

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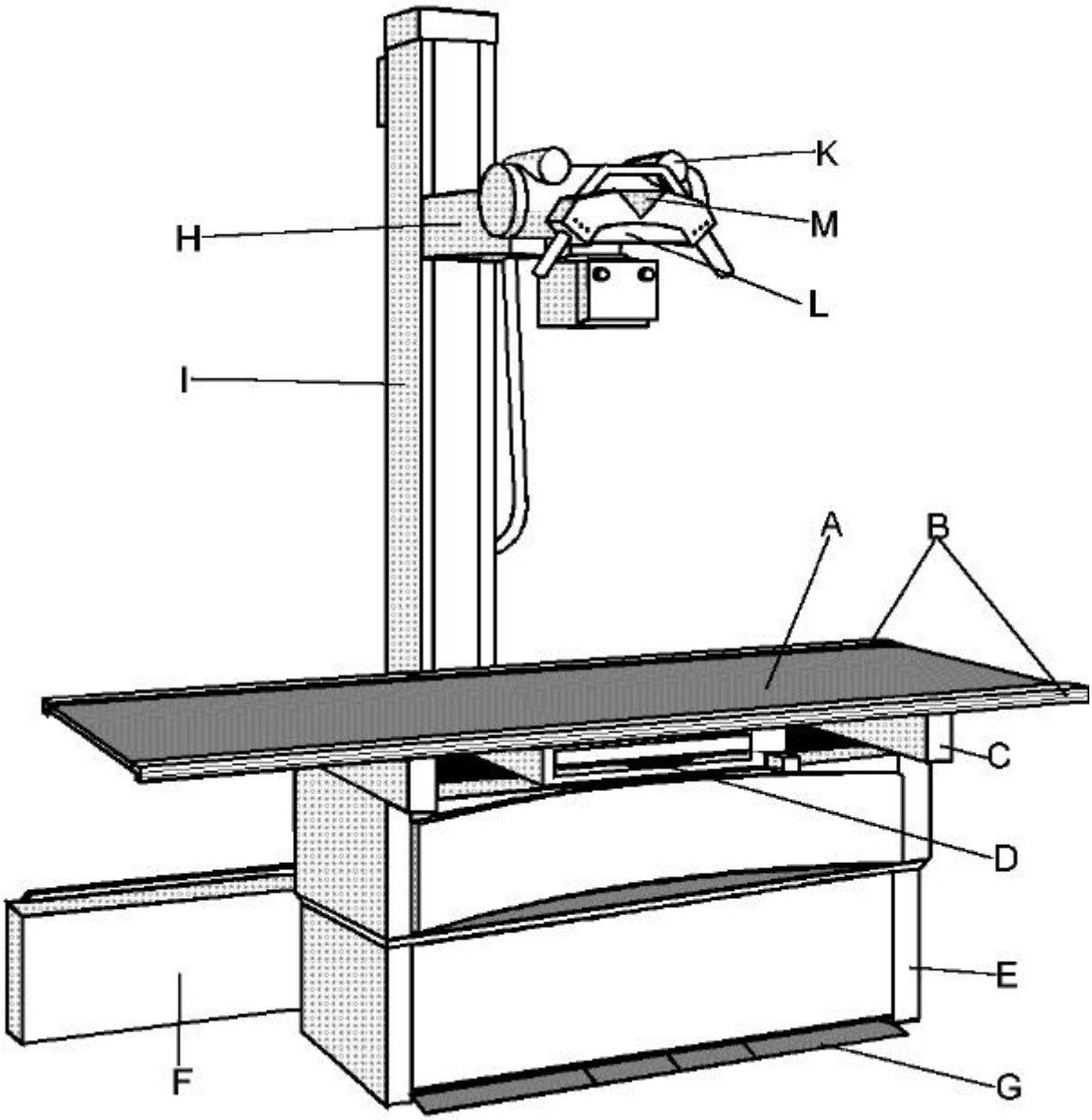
1.5 Component Designation



A Table top, floating, manually movable, scratch resistant
B Accessory rail with trim cover, accepts accessories
C Upper table frame
D Bucky unit, movable
E Table base, solid, vibration-free
F Guide rails for tube stand
G Foot treadle
H Vertical carriage with X-ray tube support arm
I Tube stand, rotatable
K X-ray tube
L Control arm
M Protractor

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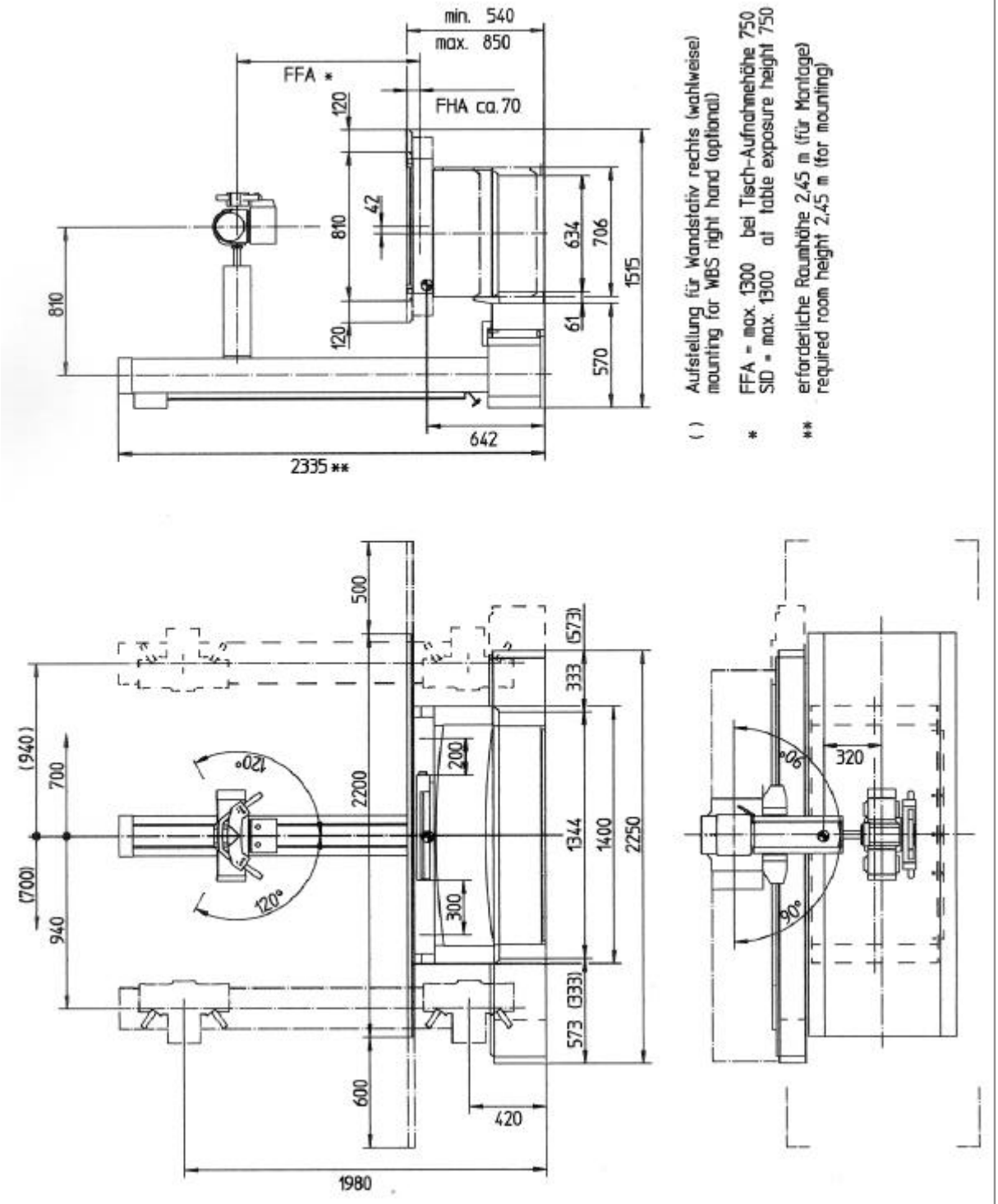
1.6 Dimensional Drawings



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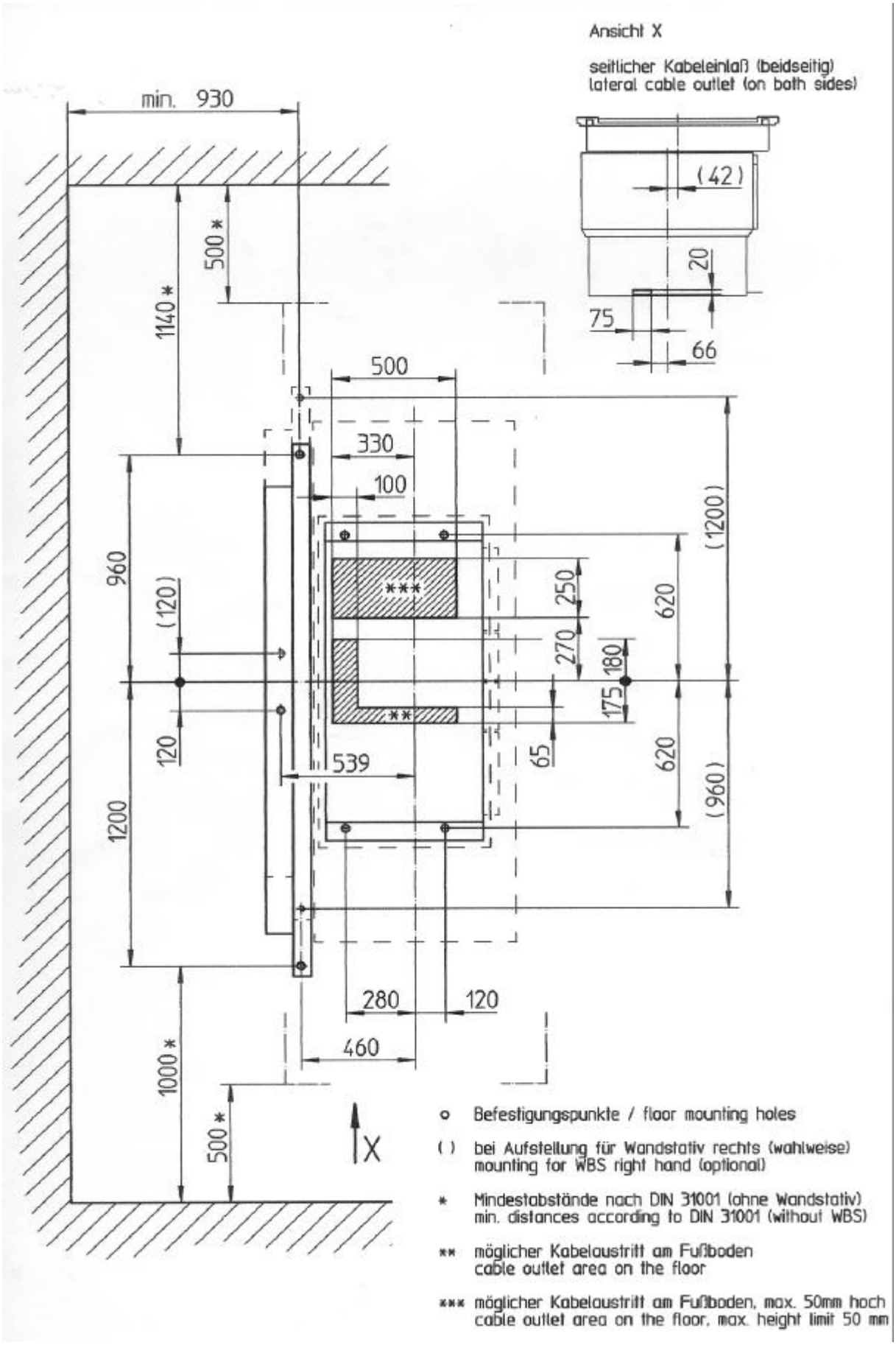
1.7 Dimensional Drawings/Floor Mounting



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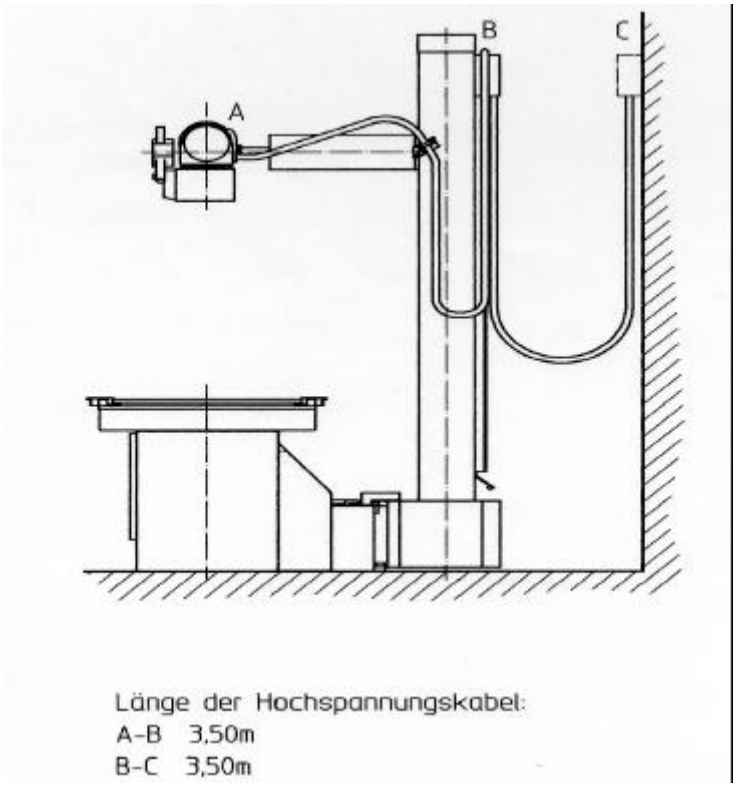
1.8 Installation of high tension cables



1.9 Constructional preparations

The electrical connection data have to correspond with the of the equipment supply voltage. For the COMBI ELEVATOR-2 supply voltage is 115/230 V with a corresponding ground connection transmission. The mounting points of the COMBI ELEVATOR-2 have to support a tractive power of 2500 N at each mounting point (concrete floor B 150 DIN 1045 when using the included fastening material).
Prepare on the floor fastening bore-holes of 12 mm according to drawing 1.6., under consideration of the construction.
The connection cable of the COMBI ELEVATOR-2, the Bucky and the detector has to be placed constructional depending on the version until the terminal box in the table base or until the Bucky according to the installation plan.
The optional ceiling- wall- terminal box can be mounted if required to the wall or ceiling.

1.10 Necessary measuring means

Machine air level

1.11 Necessary special tools

Hammer drill
massonarny drill bit 12 mm
Socket head cap key 4 mm shortened (is included)

1.12 Power supply data

Power supply:	230 VAC	or	115/ 208 VAC
Frequency:	50 / 60 Hz		50 / 60 Hz
Rated current:	5 A		10 / 6,25 A
Rated power supply voltage:	1150 VA		1150 VA

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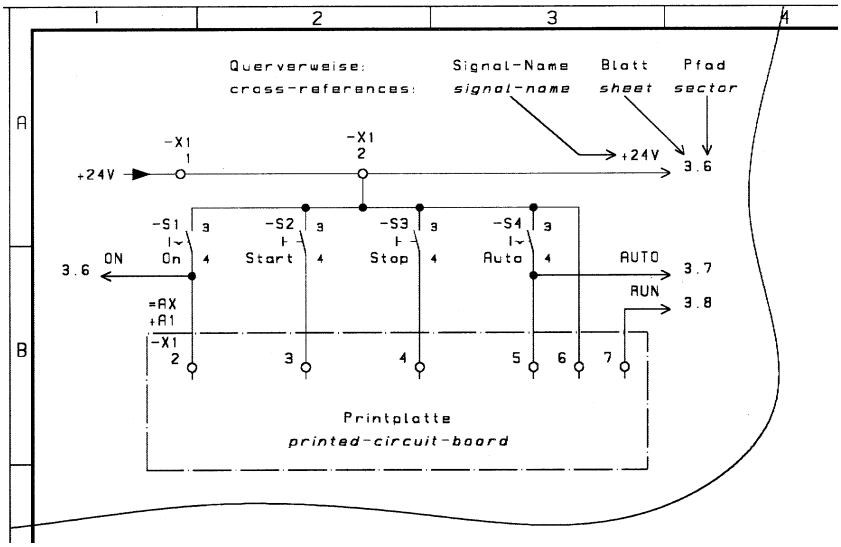
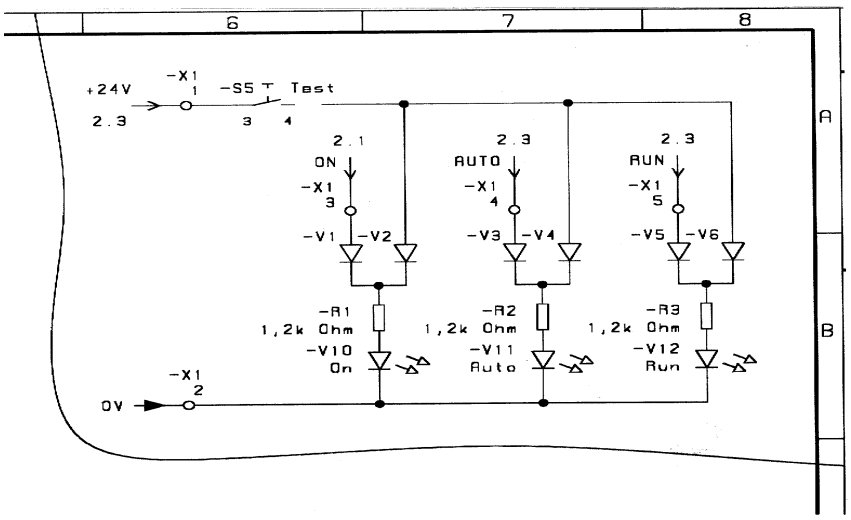
1.13 Schematics sheet 1
1.13.1 Description at Schematics

..... Schematics sheet 2
= AX control panel
= Unit, Indication



..... Schematics sheet 3
= AX control panel
= Unit, Indication



1.14 Table of contents at Schematics

Sheet 2	Schematics	=AF	Main transformer
Sheet 3	Schematics	=AF	Elevator 2
Sheet 4	Schematics	=AB	Column
Sheet 5	Schematics	=AC	Bucky drive , Interface
Sheet 6	Wiring diagram	=AF	Elevator 2
Sheet 7	Wiring diagram	=AB	Column

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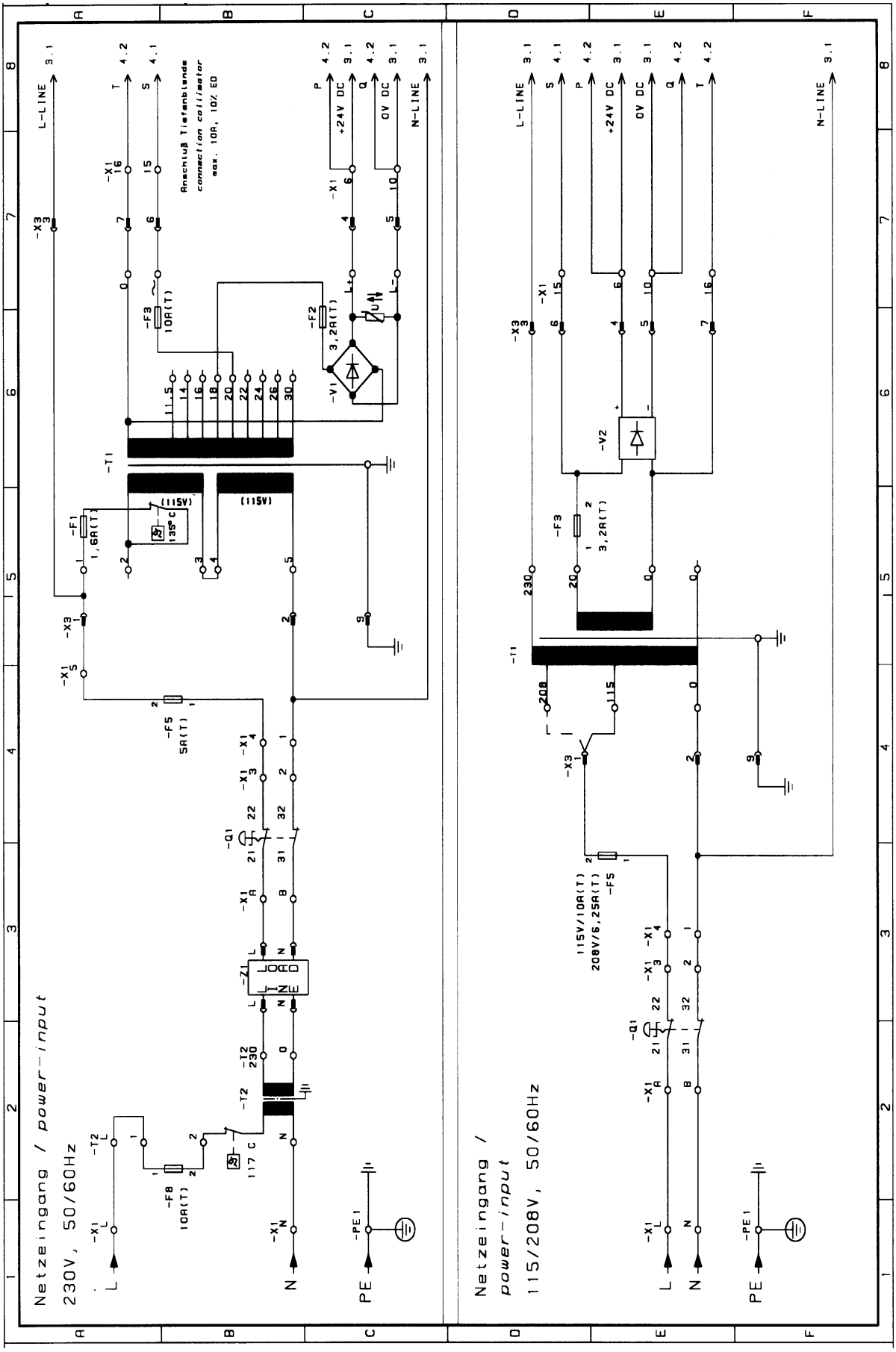
1.15 Schematics page 2 =AF Main transformer



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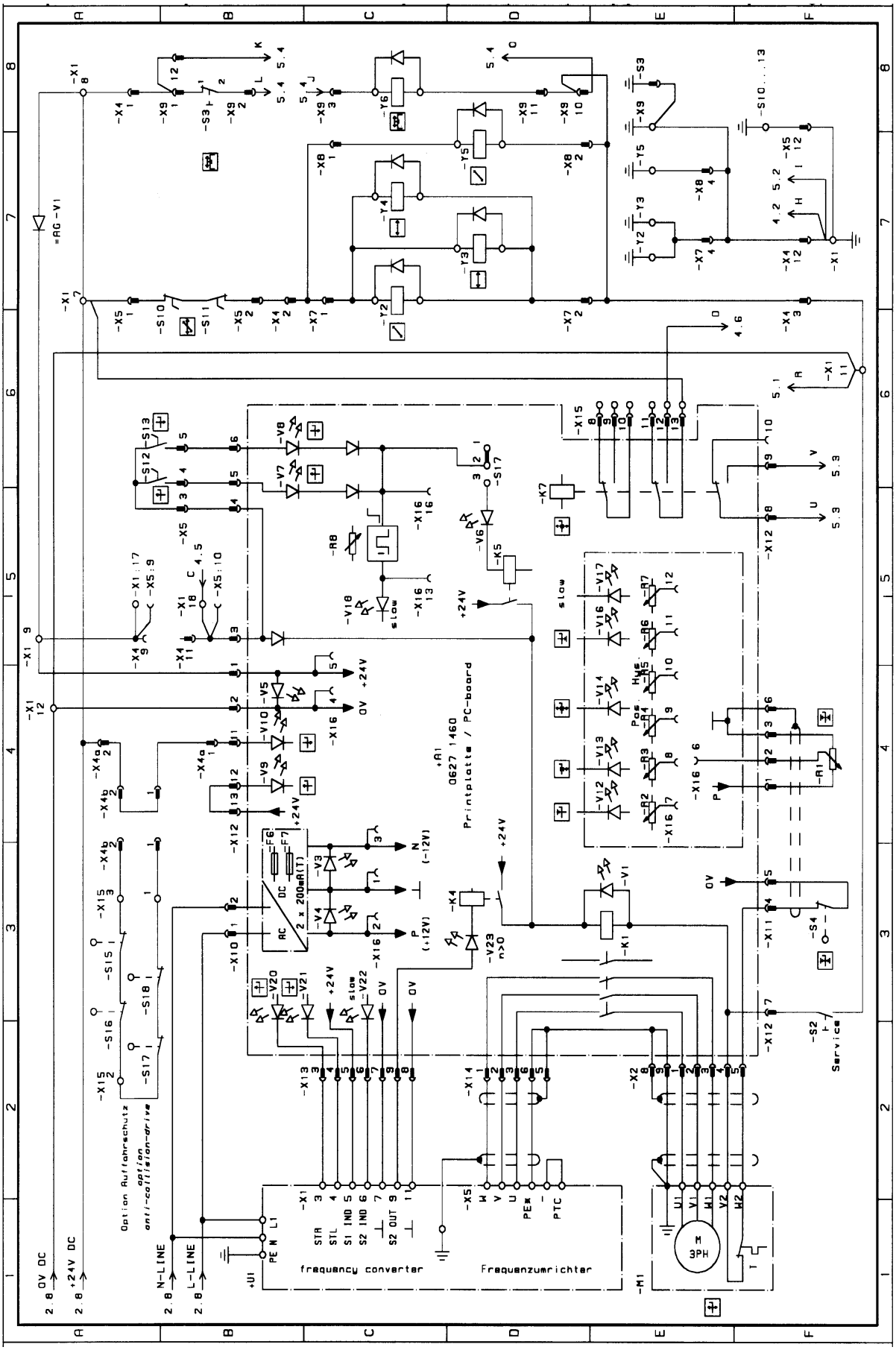
1.15 Schematics page 3 =AF Elevator 2



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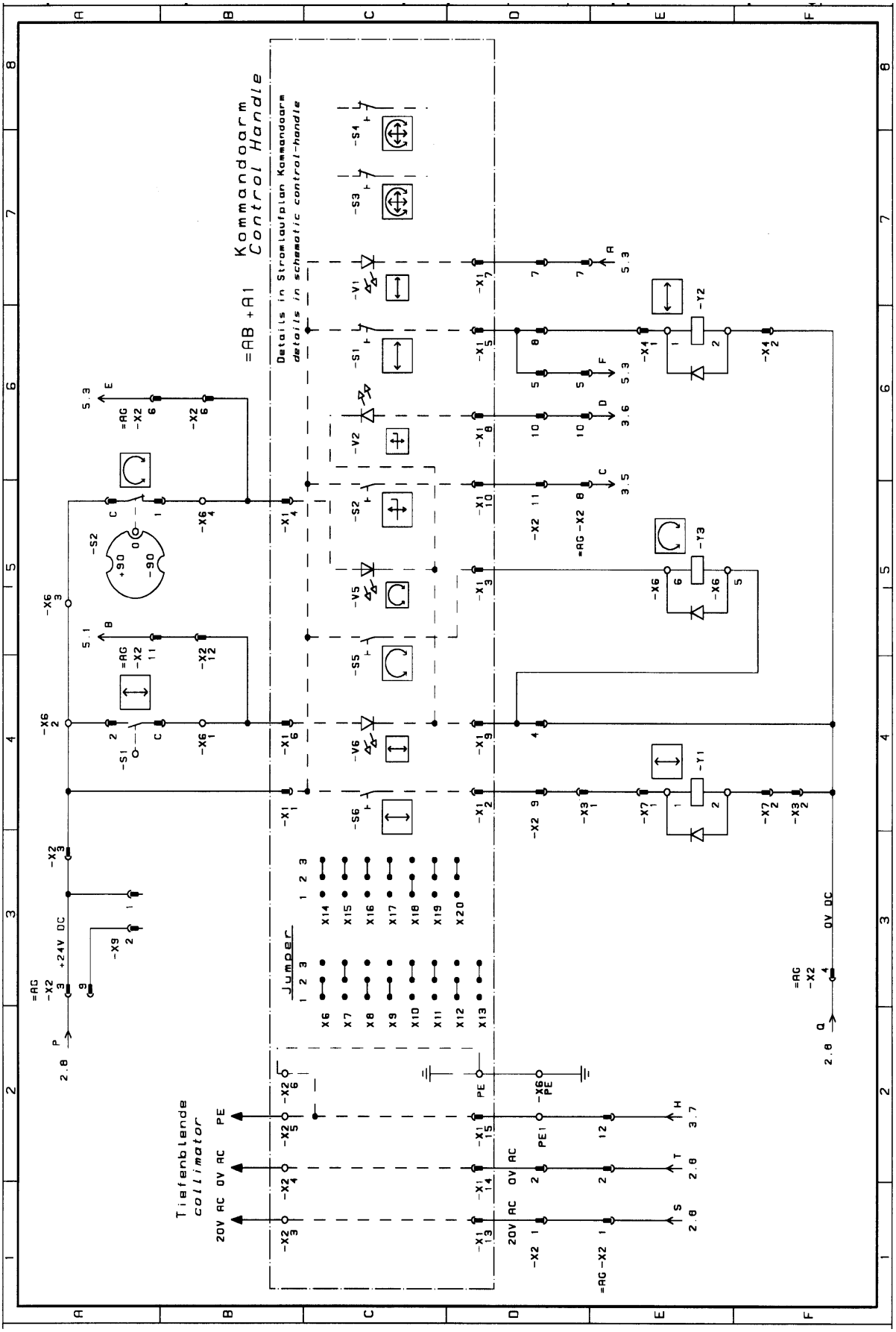

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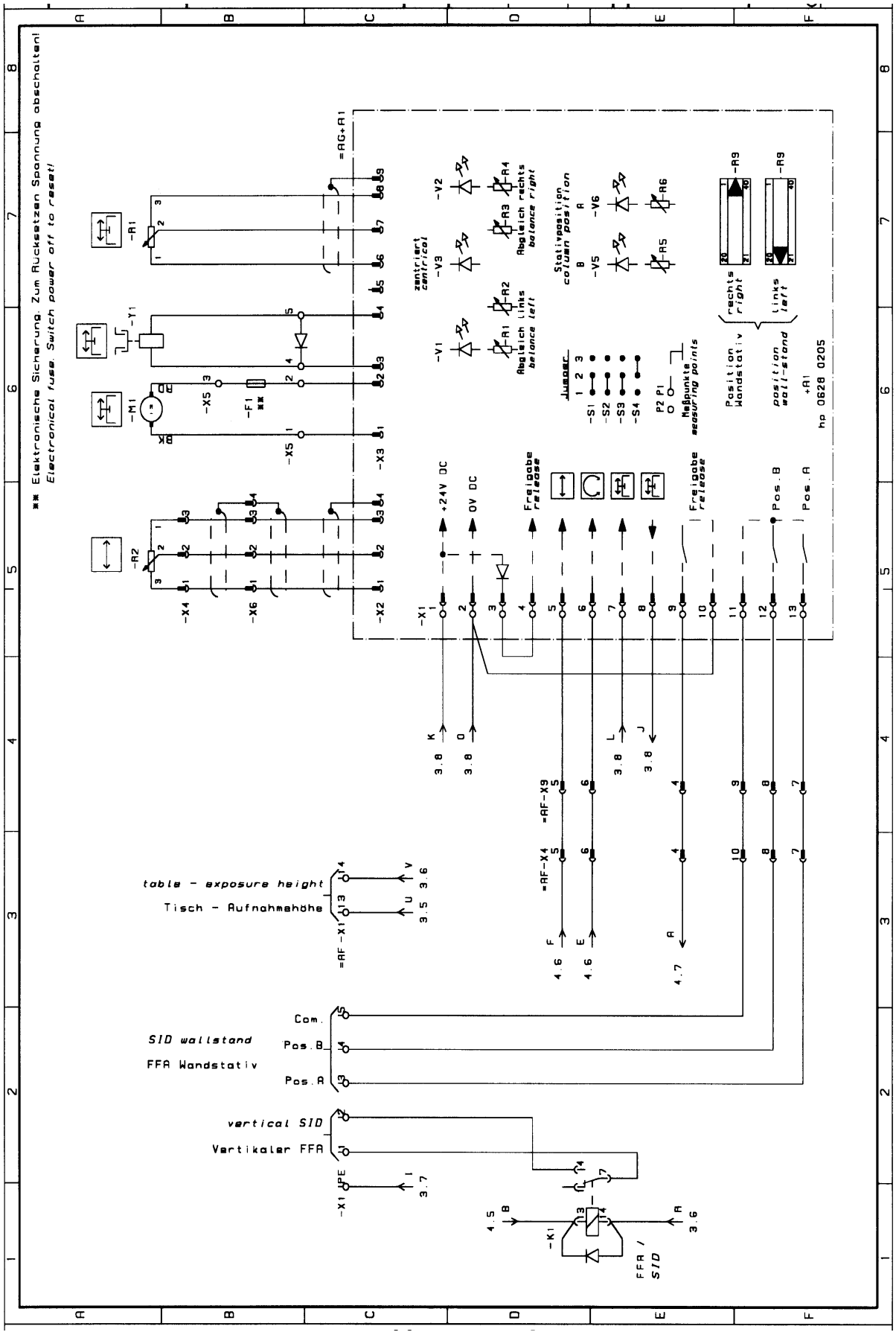
1.15 Schematics page 5 =AC Bucky drive , Interface



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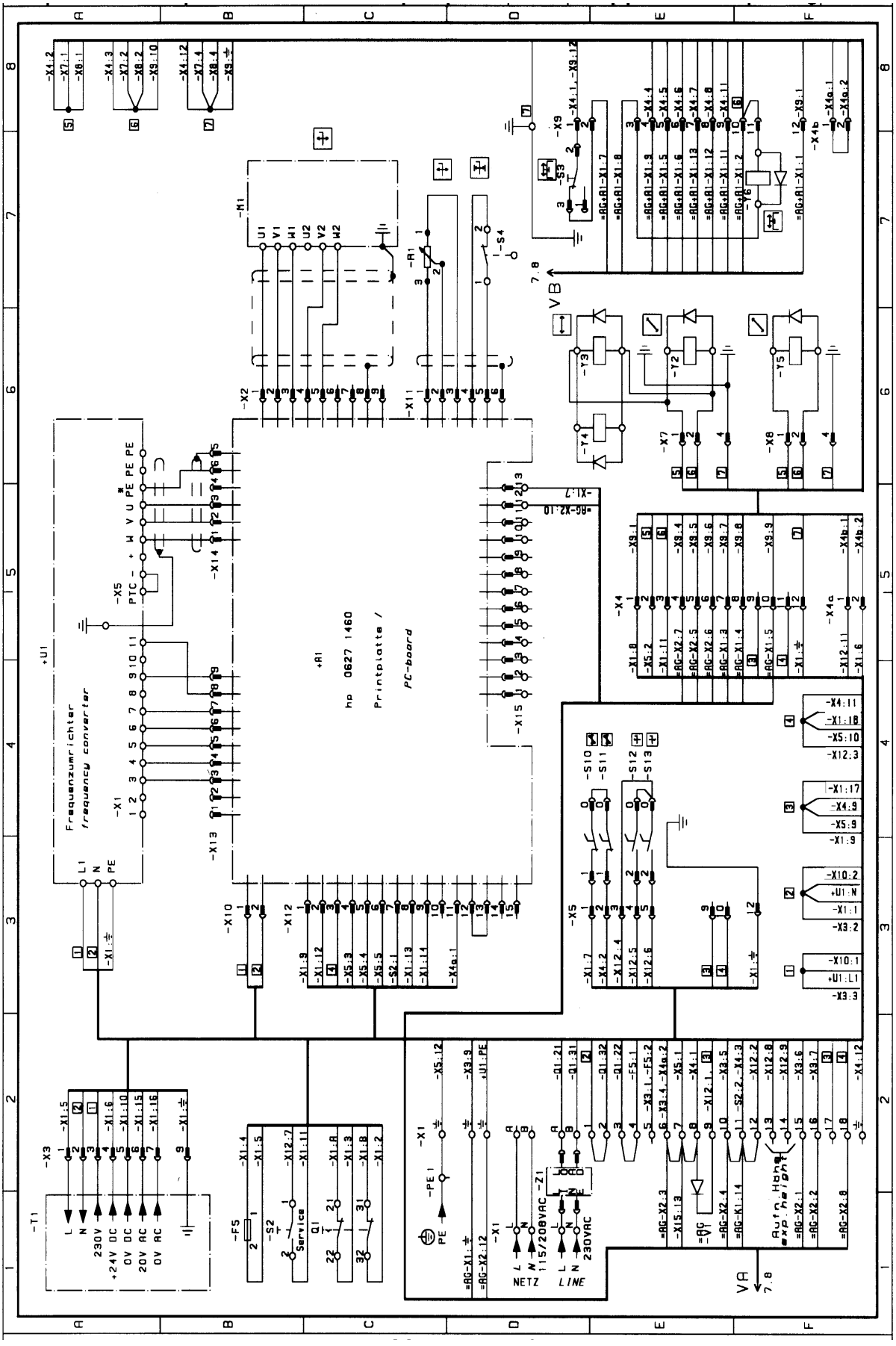
1.13 Schematics Sheet 6 Wiring diagram =AF Elevator



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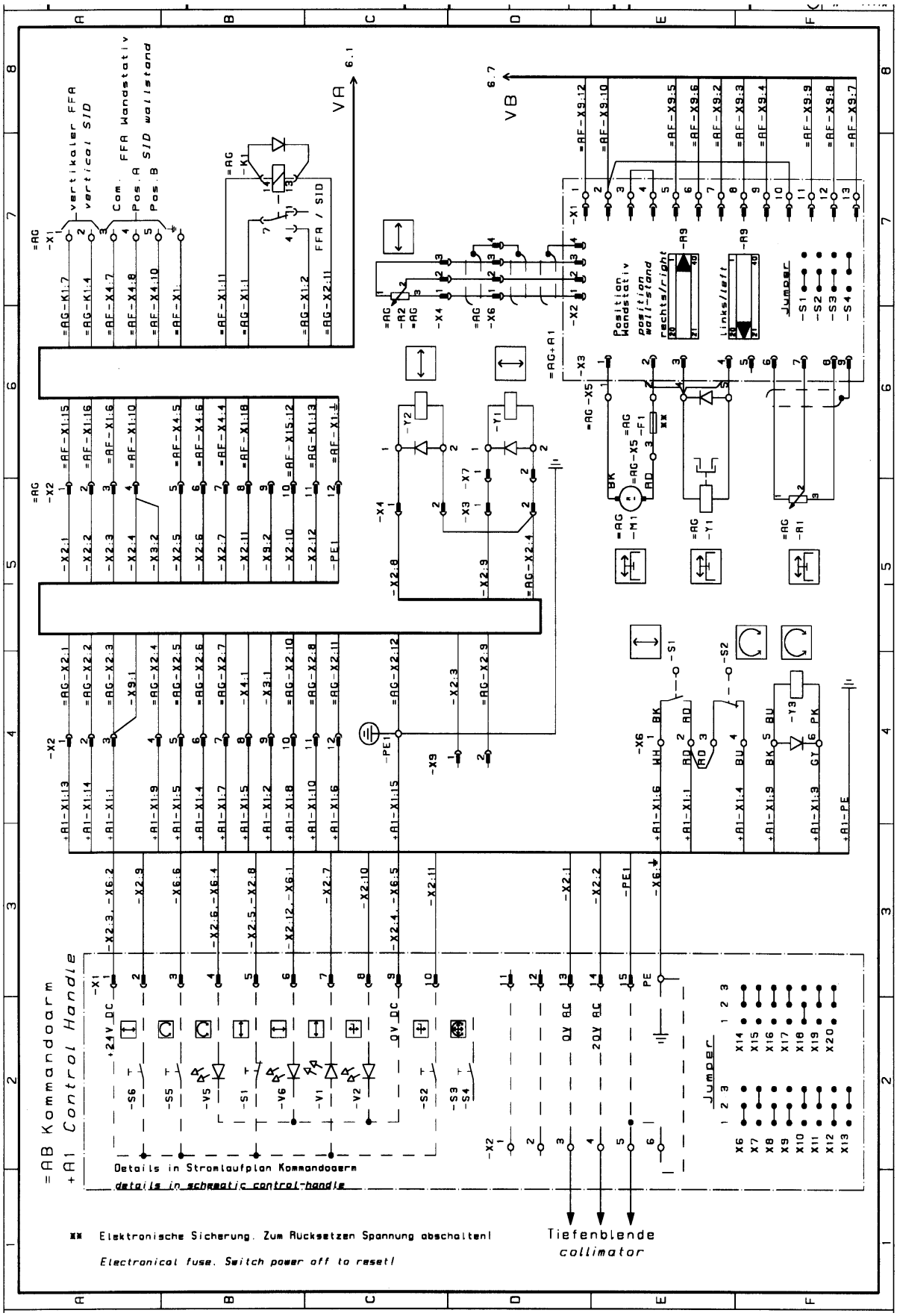
1.13 Schematics Sheet 7 Wiring diagram =AB Column



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1.16 Description of components for circuit diagram page 1

=AB- Stand

=AB+A1 Control Arm

=AB+A1-X1 Plug-in connection control arm
=AB+A1-X2 Terminal block for collimator
=AB+A1-X3 Terminal block for option

=AB+A1-S1 Switch for horizontal breake release
=AB+A1-S2 Switch for rotational breake release
=AB+A1-S3 Switch release all breaks
=AB+A1-S4 Switch release all breaks
=AB+A1-S5 Switch for rotational breake release
=AB+A1-S6 Switch for vertical breake release

=AB+A1-V1 LED -Stand - Bucky centering
=AB+A1-V2 LED -Exposure height
=AB+A1-V3 LED - for horizontal SID
=AB+A1-V4 LED - Tube select
=AB+A1-V5 LED - rotation angle 0°, +/-90°
=AB+A1-V6 LED - vertical SID

=AB-PE Main grounding bolt

=AB Stand

=AB-S1 SID switch vertical
=AB-S2 Switch rotation angle 0°, +/-90°

=AB-X2 Plug-in connection for tube support arm
=AB-X3 Plug-in connection for vertical breake
=AB-X4 Plug-in connection for horizontal breake

=AB-X6 Terminal strip in the tube support arm
=AB-X7 Plug-in connection in vertical breake
=AB-X9 Plug-in connection for =AC-S3

=AB-Y1 Vertical breake
=AB-Y2 Horizontal breake
=AB-Y3 Tube rotation breake

=AF+A1 Control Board Elevator-2

=AF +U1 Frequency Converter

=AF -F1 Fuse transformer primary
=AF -F2 Fuse 24 V
=AF -F3 Fuse 20 V AC, 20 V AC
=AF -F5 Fuse mains input
=AF -F6 Fuse +12 V DC
=AF -F7 Fuse -12 V DC

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1.16 Description of components for circuit diagram page 2

=AF -K1	Motor conductor
=AF -K2	Relay motor conductor
=AF -K4	Relay n>0
=AF -K5	Relay safety switch
=AF -K6	Relay intermediate
=AF -K7	Relay exposure height
=AF -M1	Vertical motor
=AF -PE 1	Main ground stud
=AF -Q1	Service switch
=AF -R1	Height potentiometer
=AF -R2	Trimmer disconnection vertical
=AF -R3	Trimmer intermediate stop
=AF -R4	Trimmer exposure position stop
=AF -R5	Trimmer exposure position hysterese
=AF -R6	Trimmer disconnection at the bottom
=AF -R7	Trimmer slow motion range
=AF -R8	Trimmer slow motion time
=AF -S2	Service - switch
=AF -S3	Switch for breake of Bucky carriage
=AF -S4	Safety limit switch
=AF -S5	Safety push bottom
=AF -S10	Pedal for table top breake
=AF -S11	Pedal for table top breake
=AF -S12	Pedal for vertical upwards
=AF -S13	Pedal for vertical downwards
=AF -S17	Jumper safety relay
=AF -T1	Mains transformer
=AF -T2	Transformer for electronics
=AF -V1	LED motor relay
=AF -V3	LED -12 V DC
=AF -V4	LED +12 V DC
=AF -V5	LED +24 V DC
=AF -V6	LED safety switch
=AF -V7	LED pedal vertical up
=AF -V8	LED pedal vertical down
=AF -V9	LED limit switch vertical up
=AF -V10	LED limit switch vertical down
=AF -V12	LED disconnection vertical at the top
=AF -V13	LED intermediate stop
=AF -V14	LED exposure height
=AF -V16	LED disconnection vertical upwards
=AF -V17	LED slow motion range
=AF -V18	LED slow motion time
=AF -V20	LED frequency converter vertical upwards
=AF -V21	LED frequency converter vertical downwards
=AF -V22	LED frequency converter slow motion
=AF -V23	LED frequency converter n>o

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1.16 Description of components for circuit diagram page 3

=AF -X1	Terminal strip
=AF -X2	Plug in connection to motor
=AF -X3	Plug in connection to transformer
=AF -X4	Plug in connection to motor drive
=AF -X4a	Plug in connection to anti collision drive
=AF -X4b	Plug in connection to anti collision drive
=AF -X5	Plug in connection to pedal strip
=AF -X7	Plug in connection to left transverse breake
=AF -X8	Plug in connection to right transverse breake
=AF -X9	Plug in connection on Bucky carriage
=AF -X10	Plug in connection mains input
=AF -X11	Plug in connection to height measuring unit
=AF -X12	Plug in connection to control signal
=AF -X13	Plug in connection to U1 control signal
=AF -X14	Plug in connection to U1 motor voltage
=AF -X15	Plug in connection for Combi -Elevator
=AF -X16	Test socket
=AF -X16:1	Test point ground
=AF -X16:2	Test point +12 V DC
=AF -X16:3	Test point -12 V DC
=AF -X16:4	Test point 0 V DC
=AF -X16:5	Test point +24 V DC
=AF -X16:6	Test point actual value height measuring-R1
=AF -X16:7	Test point nominal value disconnection top
=AF -X16:8	Test point nominal value intermediate stop
=AF -X16:9	Test point nominal value exposure pos. stop
=AF -X16:10	Test point nominal value exposure pos. hyst.
=AF -X16:11	Test point nominal value disconnection bot.
=AF -X16:12	Test point nominal value slow motion range
=AF -X16:13	Test point time impulse exposure
=AF -X16:14	Test point memory signal exposure position
=AF -X16:15	Test point time impulse exposure position
=AF -X16:16	Test point Pedal vertical up- or downwards
=AF -Y2	Breake table top transverse left
=AF -Y3	Breake table top longitudinal
=AF -Y4	Breake table top longitudinal
=AF -Y5	Breake table top transversal right
=AF-Y6	Breake Bucky
=AF-Z1	Filter
=AF -Q1	Service switch

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1.16 Description of components for circuit diagram page 4

=AG Combi Elevator-2

=AG +A1 Control board Bucky drive

=AG +A1-R1 Balance end position right
=AG +A1-R2 Balance centering right
=AG +A1-R3 Balance centering left
=AG +A1-R4 Balance end position left
=AG +A1-R5 Balance position B
=AG +A1-R6 Balance position A

=AG +A1-V1 LED end position right
=AG +A1-V2 LED end position left
=AG +A1-V3 LED column central
=AG +A1-V5 LED column in position B
=AG +A1-V6 LED column in position A

=AG +A1-X1 Plug connection to Elevator
=AG +A! -X2 Plug connection horizontal measuring unit column
=AG +A1-X3 Plug connection to Bucky drive

=AG -K1 Relais SID vertical
=AG -M1 Motor Bucky position

=AG-R1 Potentiometer Bucky position
=AG-R2 Potentiometer column stand Position

=AG-V1 Disconnecting diode

=AG-X1 Plug Terminal SID vertical
=AG-X2 Plug connection to column
=AG-X4 Plug connection horizontal measur. unit column
=AG-X5 Plug terminale for motor and coupling
=AG-X6 Plug connector horizontal measuring unit column

=AG-Y1 Motor coupling Bucky

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2. Mounting

2.1 Preparing the Floor

Drill holes for the floor mounting of the equipment as shown in dimensional drawing, page 6, with a 12 mm/.472 in. drill.
To ensure full range motion of the system components, keep the minimum distances as indicated.
The bolts must be suitable for 2500 N tensile stress at each mounting point. E.G. Liebig security anchors S12/65 N for B 150 DIN 1045 concrete floor.
Remove the vinyl or carpet floor covering around the mounting points for the base of the unit.
Lay floor covering shims (installation material, included with the shipment) of the same thickness as the original floor covering at the mounting points.

2.2 Uncrating and Preparing the Table

Remove packing material. Establish a provisional power supply with the assembly connecting cable (Fig. 1/Pos. 6) and lift the table to maximum height. Take off plastic covers (Fig.1/ Pos. 1). Loosen the Allan screws underneath with a 4 mm Allan wrench. Swivel the top cover (Pos. 2) forward and lift off by pulling upward.

Fig. 1

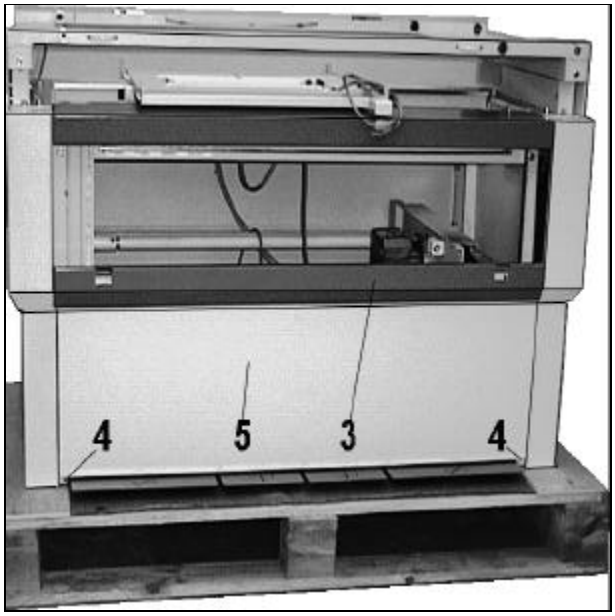

Fig. 2

Remove both Allan screws and connecting bar (Fig. 2/ Pos. 3). Loosen Allan screw (Pos. 4). Swivel the cover (Pos. 5) at the bottom forward and pull out downward.

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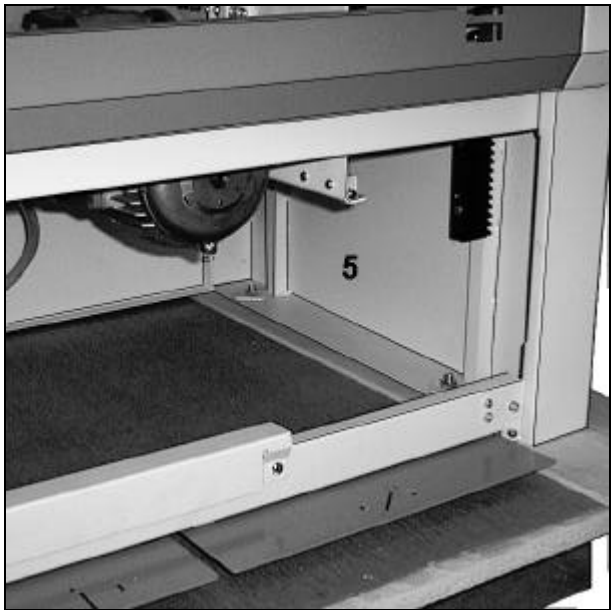
Loosen the Transport screws (Fig. 3 /Pos. 5) from the palette. Tilt table to the back, pull out palette to the front and take off the table carefully.



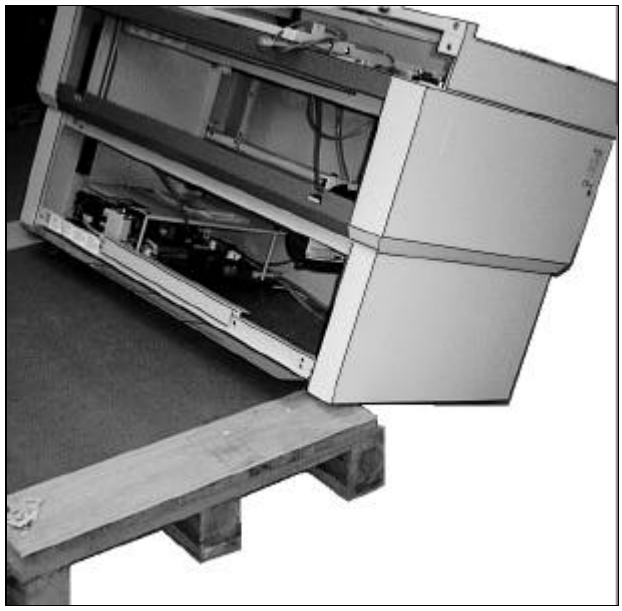


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Fig. 3 Fig. 4

Remove both end covers (Fig. 5/Pos. 7 and 8) and loosen the transport security screws of the rail stand, then push to the bottom. Remove rail stand from the palette and take to the assembly area. Dismount transport security plates of the column. (Leave column on the palette until assembly). Unpack equipment parts and check for completeness according to shipping list respectively order. Check complete delivery upon damage before assembly start.

Fig. 5 Fig. 6

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2.3 Assembly of the table and rail stand

Attention: The equipment will be shipped for Bucky Wall Stand left-hand. For Bucky Wall Stand right-hand prepare rail stand according to chapter 2.17.

Take the table to installation point. Place the rail stand behind the table. Align the rail stand (Fig. 5/Pos.9) to the right or left side of the table (Fig. 6/Pos. 10) depending on the way of assembly (according to drawing for installation of a Bucky wall stand left or right).

Fig. 7

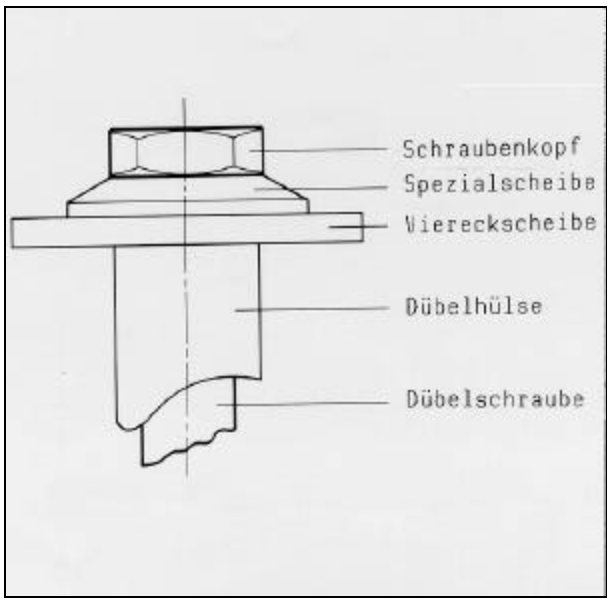

Fig. 8

Fasten the rail stand (Fig. 7/Pos. 9) with 4 screws to the fastening points (Fig.6/Pos. 10) of the table. Push table with rail stand over the fastening bore-holes at the assembly place. Respectively align the table at the assembly place, mark the 5 fastening bore-holes and bore. Insert the included set pin (Fig. 8) and insert screws and washers.

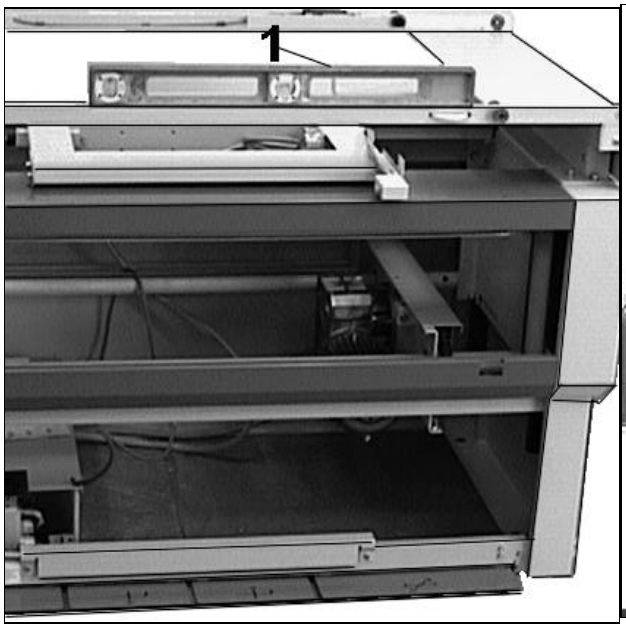

Fig. 9

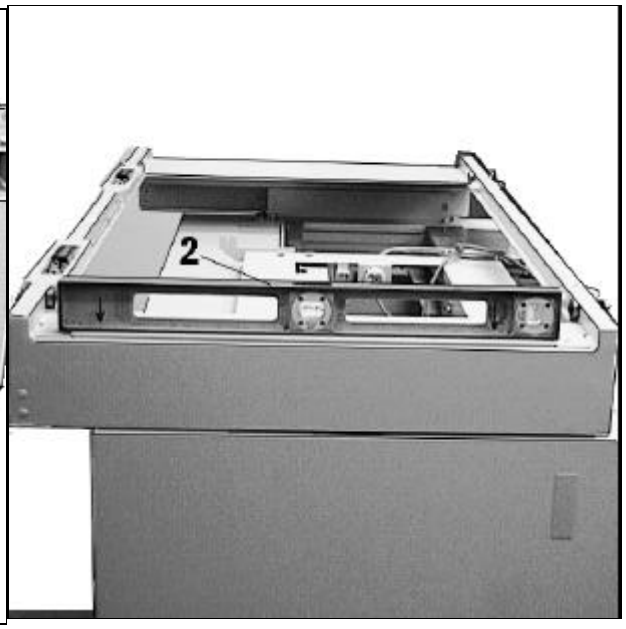

Fig. 10

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Align table with rail stand according to liquid level (Fig. 9/Pos. 1, Fig. 10/Pos. 2 and Fig. 12/Pos. 1 and 2). If necessary, align with washers (Fig. 11/Pos. 1).
Attention: Do not deform equipment base in neither direction.
Fasten all screws tightly.

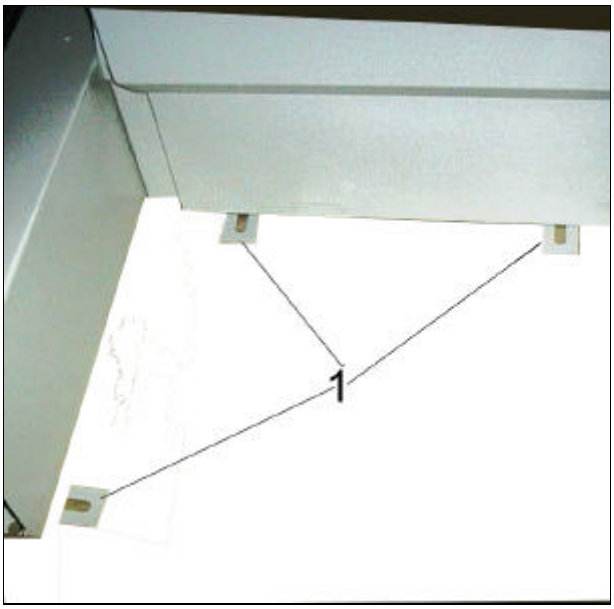

Fig. 11

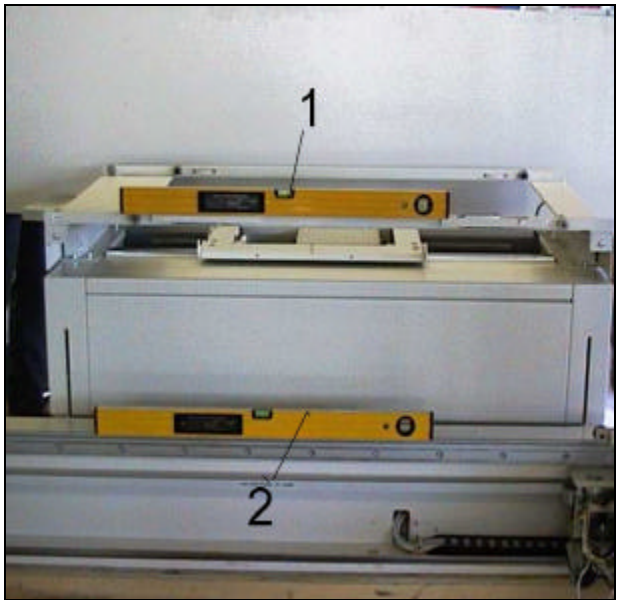

Fig. 12

2.4 Assembly of the column

The column will be shipped with the counterweights in place. The counterweight in the column is secured for the transport with two screws.

Attention:
Do not remove the security bolts before assembly of the tube and collimator.

To insert the column into the rail stand easily, an assembly plate is included to the shipment. It is constructed so that it can slide on a normal floor easily.
Dismount limit stop (Fig. 13 Pos. 1) from the rail stand.
Set up column (Fig. 14/Pos. 1) and place on the assembly plate (Pos. 2). Push the assembly plate to the rail stand and align (Fig. 14/Pos. 2). Insert the column from the assembly plate into the rail stand.

Remark:
Please pay attention while inserting bearing, Poti-drive and breake magnet.

Fasten both gear belt end parts left and right to the bore-holes (Fig. 13/Pos. 3) of the rail stand.

Remount the limit stop (Fig. 13/Pos. 1) to the rail stand.

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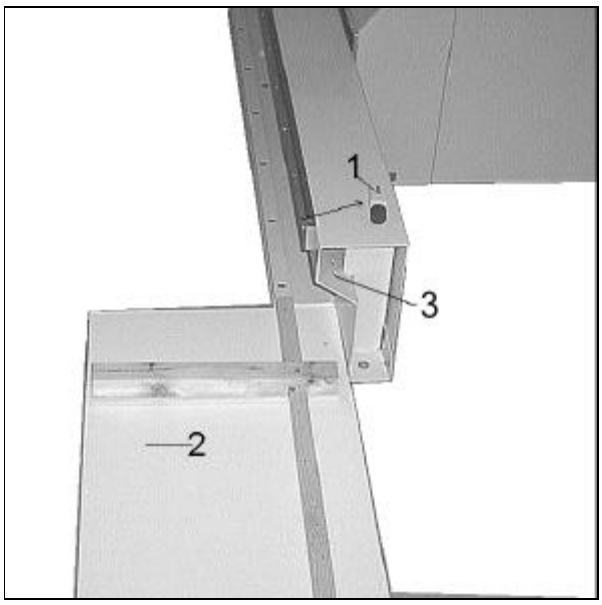

Fig. 13

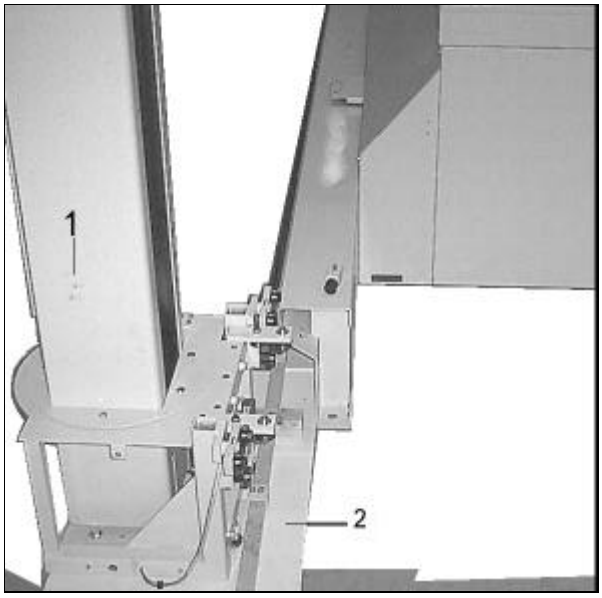

Fig. 14

Mount the cable guide chain (Fig. 15/Pos. 1) to the rail stand - back wall - and to the column carriage (Pos. 2). Insert the end of the cable (Pos. 3) into the table and connect all cables according to the wiring diagrams. Mount the distributing plate (Pos. 4) to the column carriage.

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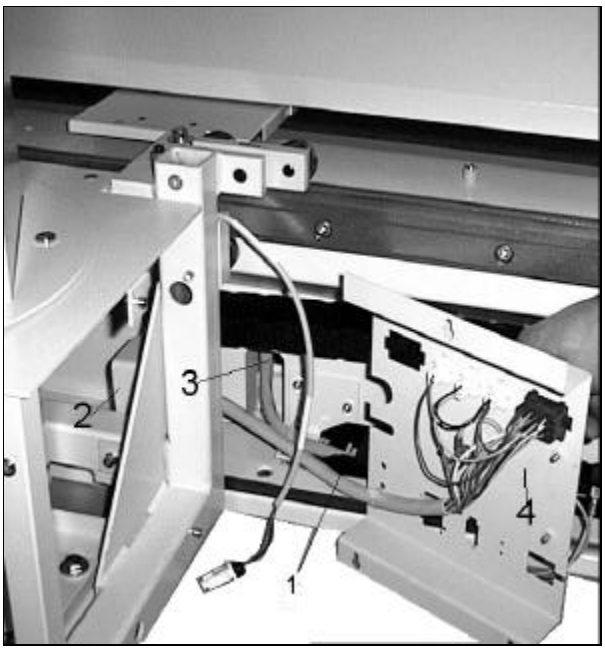

Fig. 15

Fig. 16

2.5 Assembly of Bucky

Remark:
Buckys of different manufacturers can be installed. The equipment will be prepared according to the customer order and the necessary fastening materials will be included to the shipment.

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Insert the Bucky (opening of cassette to the front) in the Bucky carriage (Fig.16/Pos.1).
Install connection cable and detector cable according to the instructions of the manufacturer.

Bucky P and LF
Fastening with 2 screws each (Fig. 16/Pos. 3) left and right lateral. Put at the top the cover angle with the longer side (Fig. 16/Pos. 4) to user- and back side and fasten above with 3 screws each and U-washer.

Philips
Fastening with 2 screws (Fig. 16/Pos. 3) left and right lateral. Put at the top the cover angle with the longer side (Fig. 16/Pos. 4) to user- and back side and fasten above with 3 screws each.

Siemens
Fastening with 2 screws each (Fig. 16/Pos. 3) left and right lateral.

2.6 Assembly of the table top

Remark:
If there is less than 2900 mm from the mid of table to a wall available, please mount the table plate according to section 2.6.1.

Remove table top out of packing.
Dismount on one grinding the limit stop (Fig.20/Pos.1) and push the table top (Fig.17/Pos. 2) on the transverse carriage.

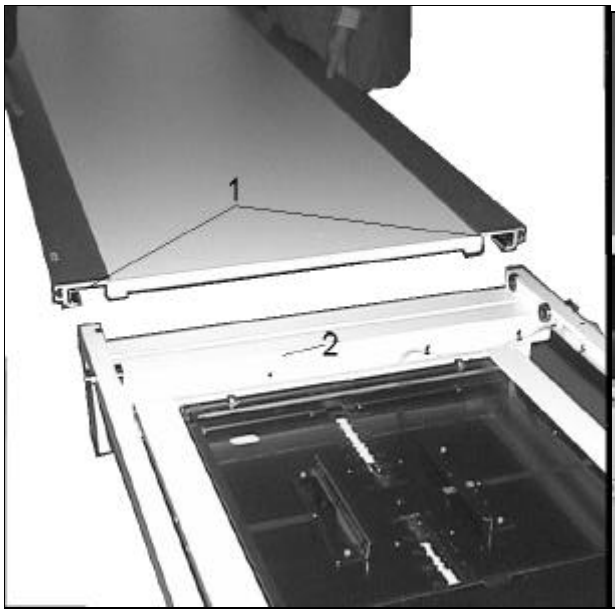

Fig. 17

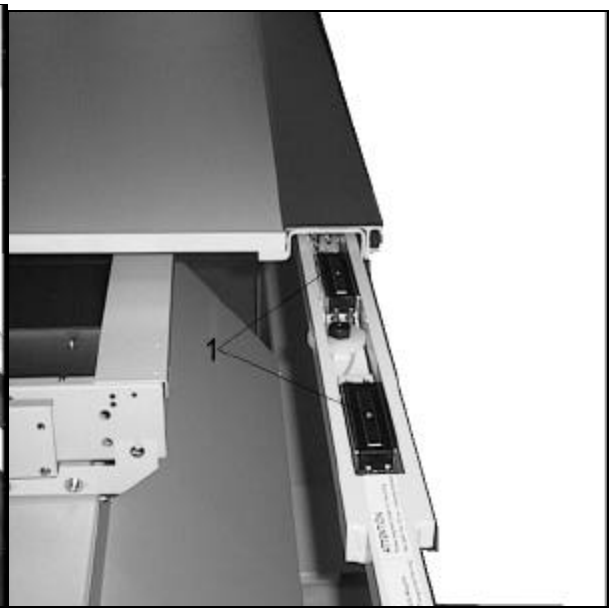

Fig. 18

Attention:
Pay attention to the breake magnets (Fig. 18/Pos. 1) while inserting the table top.
Remount limit stops (Fig. 20/Pos. 1)

Put the included cardboard of the table top packing on the table top during assembly to avoid any damages.

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2.6.1 Assembly of the table top in small rooms

Dismount on both grindings the limit stops Fig. 20/Pos. 1). Dismount the front bearings (Fig. 19/Pos. 1 and 2) and the plastic guide rolls.

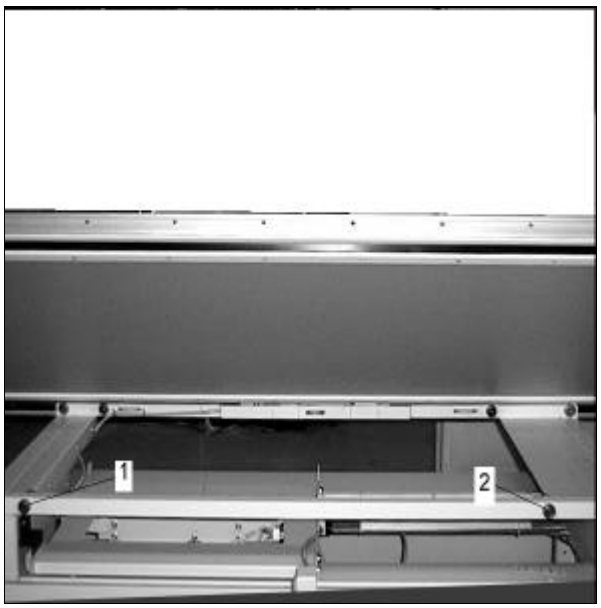

Fig. 19

Fig. 20

Put the table top on the table frame and lift the table top on the user side about 45°. Put meanwhile the table top rail from behind over the Polyamide roll and bearings. Lower the table top carefully. Move the table top longitudinal and remount the dismounted bearings. Readjust the regulations of the eccentric. Remount the limit stops (Fig. 20/Pos. 1).
Put the included pasteboard of the table top packing on the table top during assembly to avoid any damages.

2.7 Assembly of the tube and collimator

Siemens

Dismount the intermediate ring (Fig. 21/Pos. 59). Mount the window flange (Pos. 58) between the adjusted flange (Fig. 21/Pos. 57) and mount to the tube housing.

Collimat

Dismount the intermediate ring (Fig. 22/Pos. 1) out of the collimator (Pos. 2). Mount the window flange (Fig. 22/Pos. 3) with the control arm to the tube housing. Put the collimator (Pos. 2) onto the intermediate ring (Pos. 5) and fasten with fixing plates (Pos. 4).

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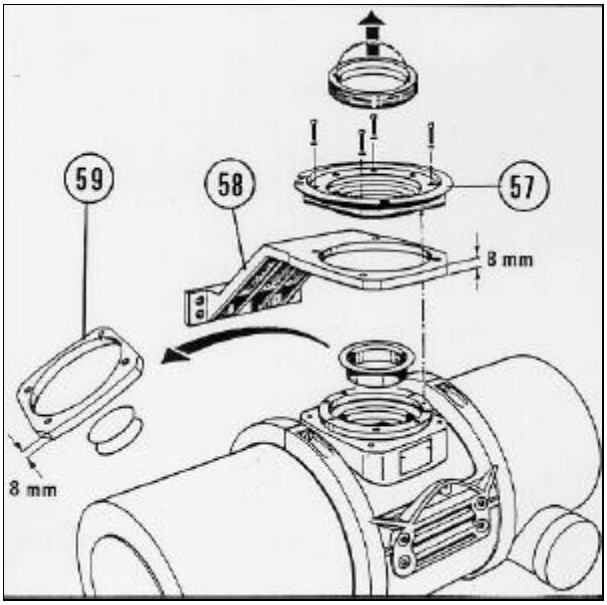

Fig. 21

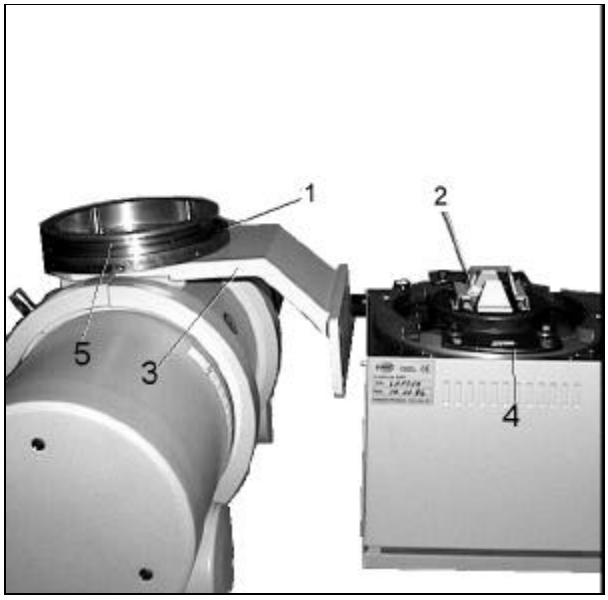

Fig. 22

Philips

Mount the control arm with the Z-angle (Fig. 23/Pos. 1) to the Rotalix.

Other manufacturer

Put the window flange (Fig. 24/Pos. 1) onto the tube housing (Pos. 4), fasten the flange plate with the intermediate ring (Pos. 2) and mount the collimator onto the flange plate.

USA version

Mount the support angle (Pos. 25/Pos. 1) between tube housing (Pos.2) and collimator.

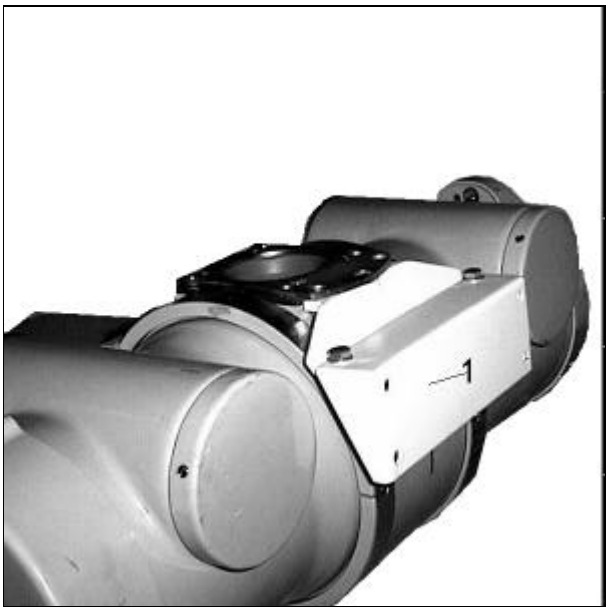

Fig. 23

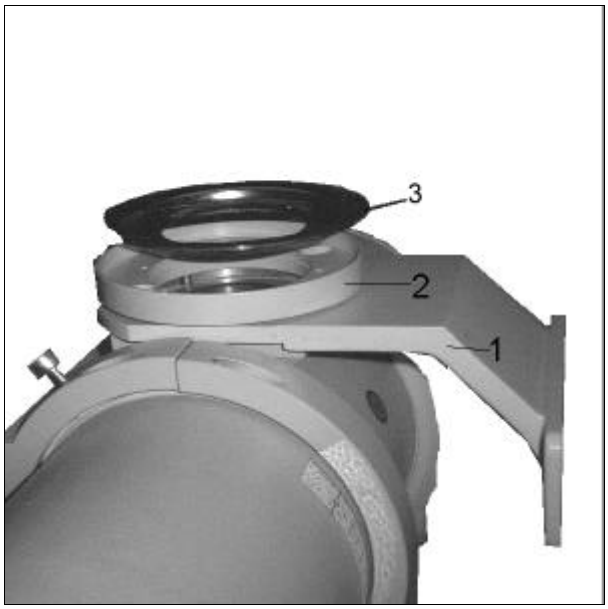

Fig. 24

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2.8 Assembly of the tube holding support

Remove the upper screws (Fig. 26/Pos. 1) and loosen the lower screws (Pos. 2) approx. 10 mm. Remove the cover of the tube holding support (Fig. 27/Pos. 1).
Put the tube holding support to the carriage support and insert the cable for the SID switch (Fig. 26/Pos. 3) in the tube holding support. Put in over the lower screws and fasten with the upper screws (Fig. 26/Pos. 1) the tube holding support to the vertical carriage.

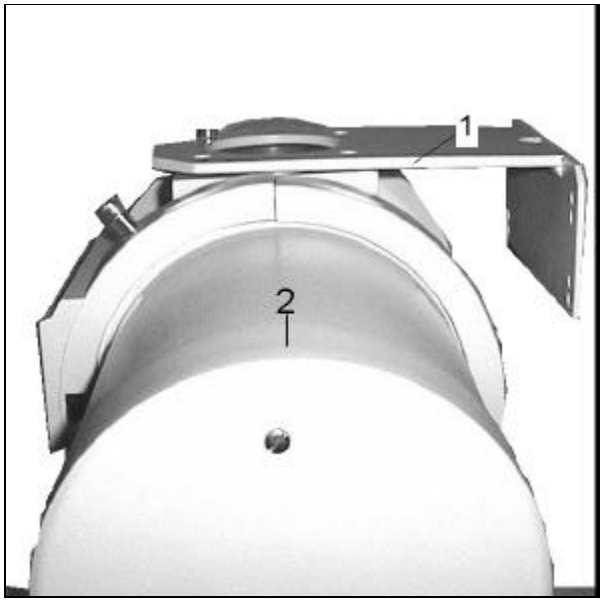

Fig. 25

Fig. 26

Fasten the lower screws (Fig. 26/Pos. 2). Lift the tube holding support slightly, then push on safety breake (Fig. 28/Pos. 1) and lower the tube holding support slowly.
Tighten the rope and the tube holding support is suspended to the rope. Install cable for SID switch in support arm.

2.9 Assembly of the tube on tube holding support

Move the centre gravity of the tube/collimator/control board unit into the rotation axis by displacing the unit vertically (in direction of x-rays) on the compensating plate (Fig.27/ Pos. 3). Insert spacer plate (Pos. 5) if necessary.

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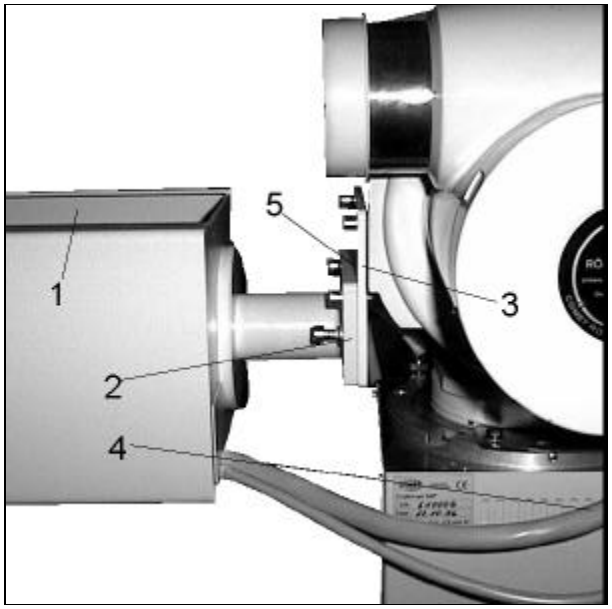

Fig. 27

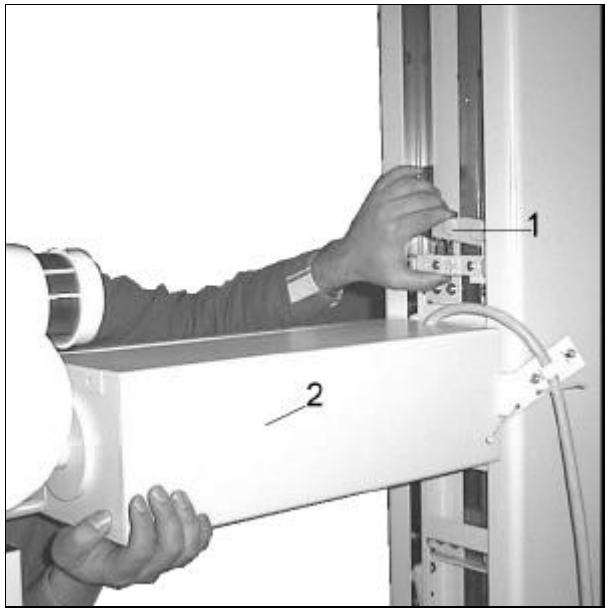

Fig. 28

Note: The compensating plate must be installed as distance plate, even if the centre of gravity lies in the rotation axis. Then fasten with the 4 screws (Pos. 3).

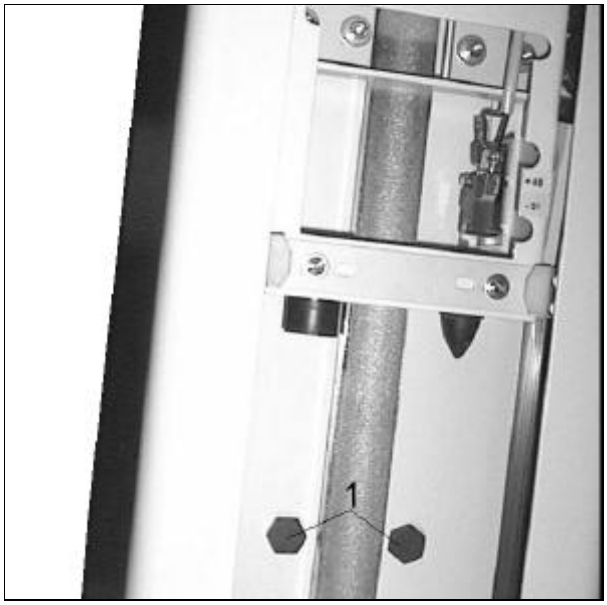

Fig. 29

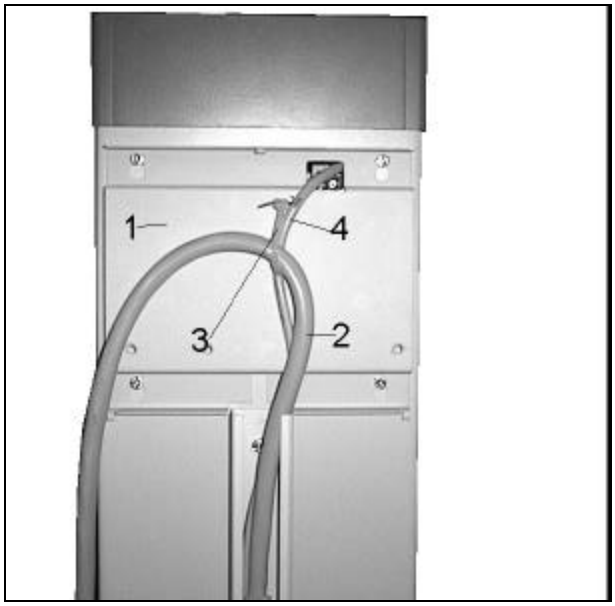

Fig. 30

Remove transport security screws (Fig. 29/Pos. 1) and insert in the head part the nuts (Fig. 33 /Pos. 1).

2.10 Assembly of the control arm

Dismount the cover (Fig. 32/Pos. 1) on the control arm (Pos. 2). Remove the 4 screws (Pos. 3) and mount the cover onto the control arm fastening. Insert the cable (Fig. 27/ Pos. 3) into the control arm and bring it to the cover. Then fasten with the 4 screws (Pos. 3).

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2.11 Assembly and installation of the cable

Mount the cable box (Fig. 30/Pos. 1) to the head of the column. Remove the cover of the cable tunnel. Insert the cable in the cable trough (Pos. 2) on the backside of the column. Screw down the cable collar in the cable tunnel (Fig. 31/Pos. 1). Plug in the plugs in the distributor plate (Fig. 12/Pos. 4). Tighten the cable to the cable box (Fig. 30/Pos. 1) and fasten with cable binder (Pos. 2). Install cable for vertical breake (Pos. 4) and earth cord in head part. Put cover onto the cable tunnel. Install the high-voltage cable to the tube. Place cable over the cable collar of the vertical carriage to the cable box on the backside of the column.

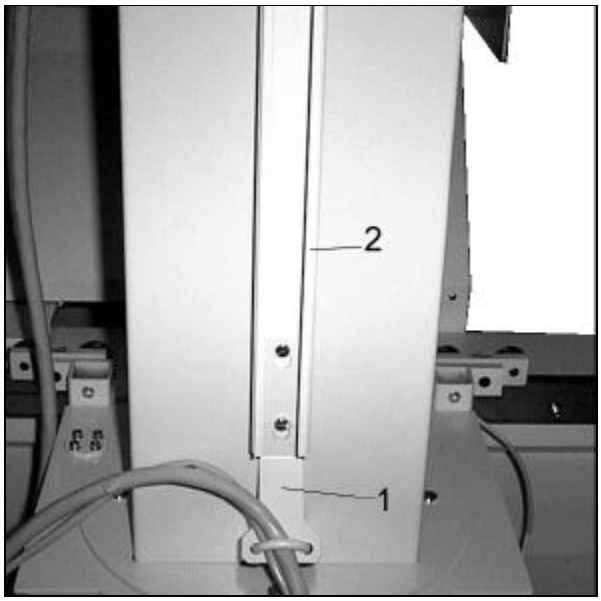

Fig. 31

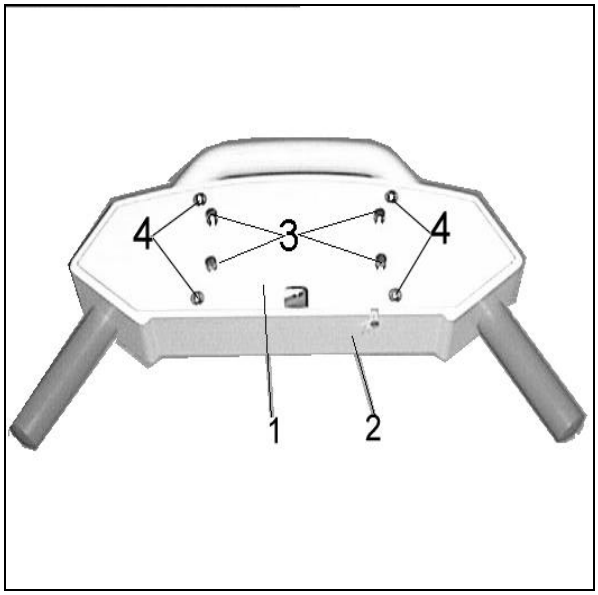

Fig. 32

Leave enough loose cable next to wall terminal box or ceiling terminal box (option). Continue the running cables to the x-ray generator, install according to the installation plan of the x-ray generator.

2.12 Counterweight on the column

The tube holding support must be counterbalanced with the installed cables. Loosen breake and check the counterweight. If there is a ascending force of the tube holding support remove weight plates out of the counterbalance box.
If there is a descending force of the tube holding support put in weight plates in the counterbalance box.

Note:
Determine the weight difference with the spring balance. Drive column beside table and pull the tube holding support to the bottom. Secure counterbalance box with the security screw Fig. 30/Pos. 1). Lift the tube holding support (Fig. 28/Pos. 2) min. 20 cms. The tube holding support is suspended in the falling breake and the robe is not fixed.

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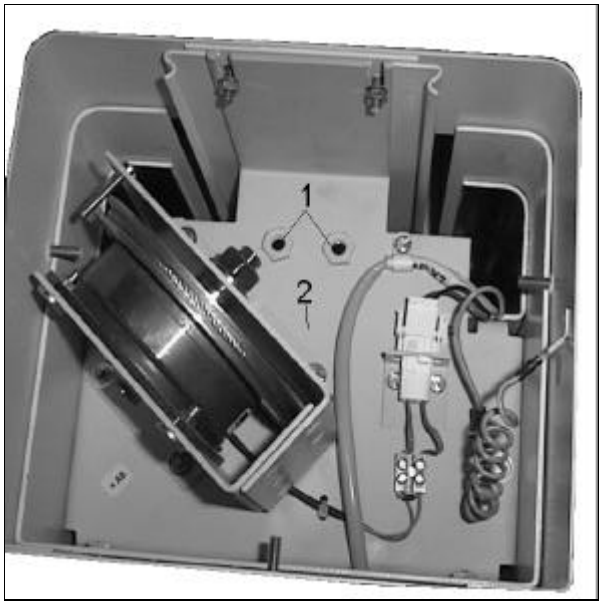

Fig. 33

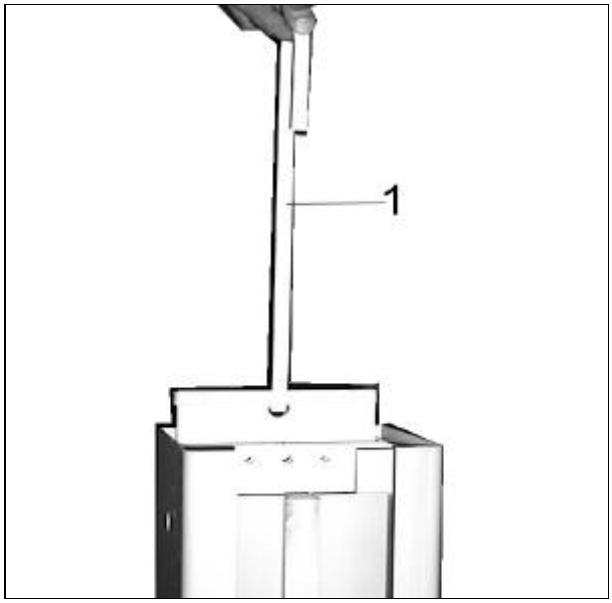

Fig. 34

Lift the head part (Fig. 33/Pos. 2) with the rope pulley and secure with a cord. Balance the calculated weight difference with the weight bracket (Fig. 34/Pos. 1). Remount the head part.

Push the tube holding support slightly to the falling breake (Fig. 30/Pos. 1) and lower slowly the tube holding support until it is fixed to the robe.

2.13 Function control

Switch in x-ray generator and check all functions. If necessary perform corrections according to chapter 3. Adjustment.

2.14 Assembly of covers

Mount the lower table cover (Fig. 2/Pos. 5), connection part and upper cover (Fig. 2/Pos.2).

Drive vertical carriage to the head side and insert lower centre cover (Fig. 37/Pos. 1). Drive vertical carriage carefully down.

Attention:
The lower centre cover has to be guided from the coulisse. Stick the upper centre cover (Fig. 37/Pos. 2) to the lower centre cover (Pos. 1).

Drive the vertical carriage to the head side and fasten the centre cover with the front border.

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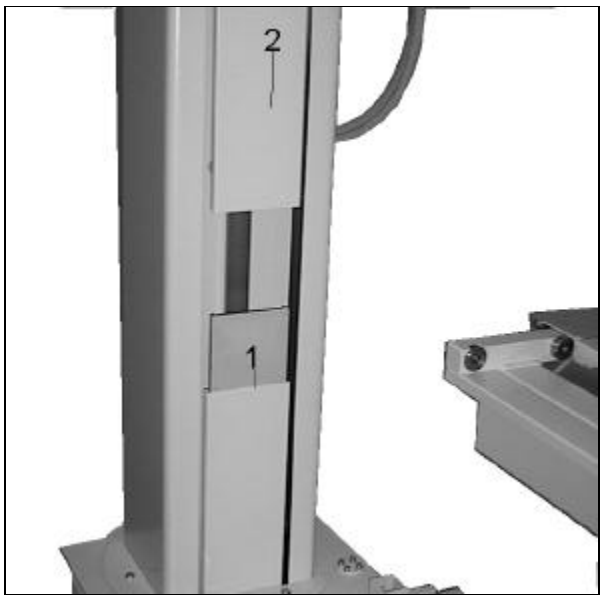

Fig. 37

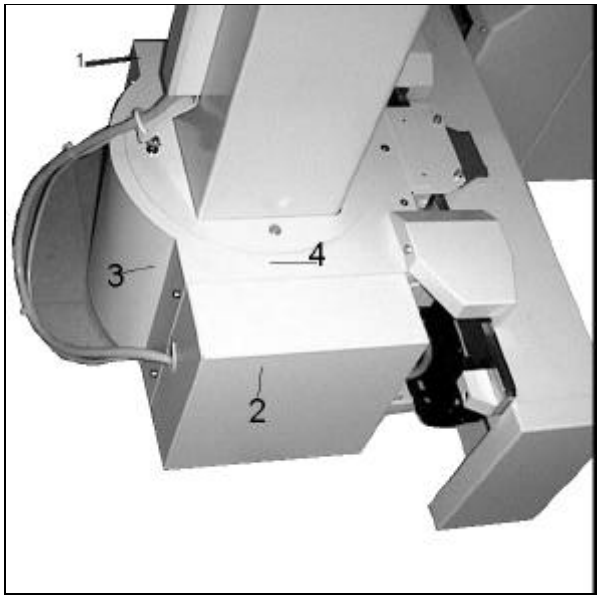

Fig. 38

Mount the left cover (Fig. 38/Pos. 1), the right cover (Pos. 2) and the cap (Pos. 3) to the column carriage (Pos. 4)

2.15 Reconstruction of rail stand

Dismount the left cover (Fig. 38a/Pos. 1) and the right cover (Pos. 2) and remount both covers.

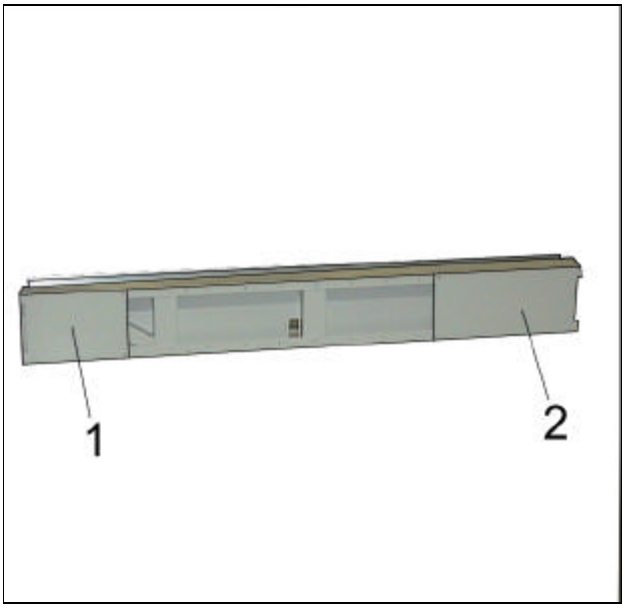

Fig. 39

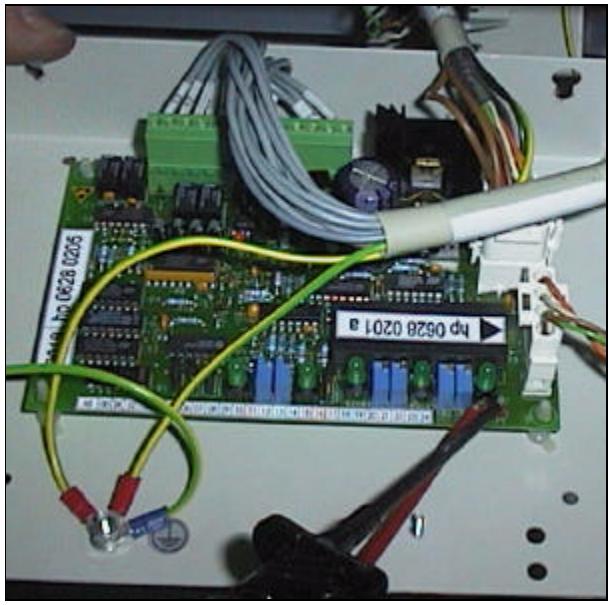

Fig. 40

Attention: Rate on the automatic control system of the Bucky the 40 pin. DIL- plug by 180°. The automatic control system is placed under the Bucky. Fig. 40 shows the disposition of the 40 pin. DIL-plug on Bucky wall stand installation right.

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3 Adjustment

3.1 Adjustment of the vertical column

The column has been aligned during manufacturing. If the alignment is not vertical after assembly align the column.

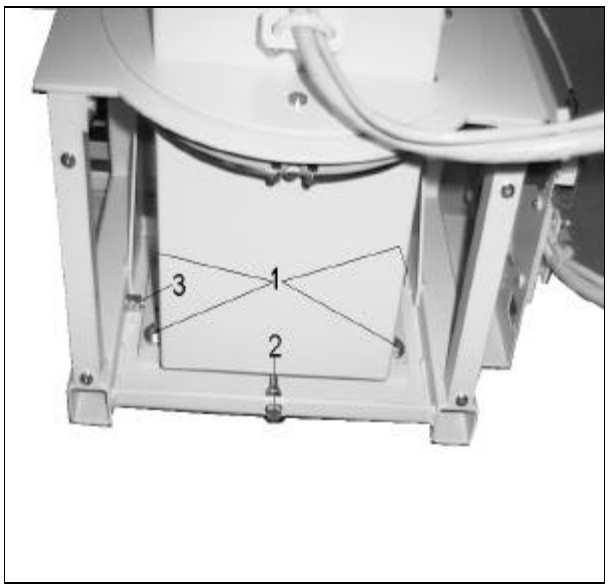

Fig. 41

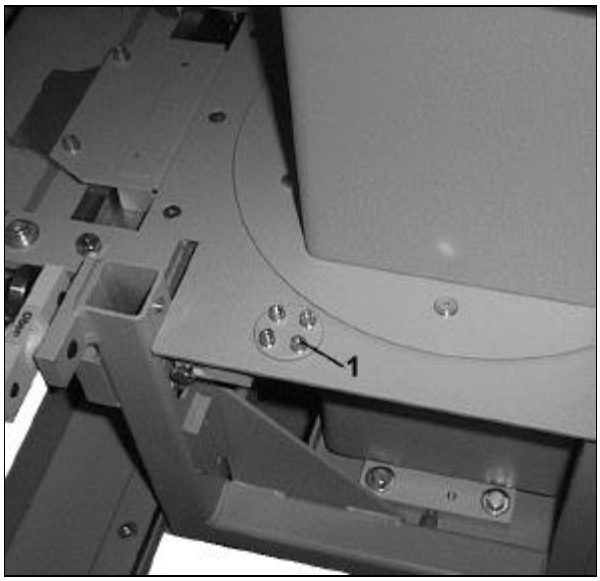

Fig. 42

Remark: Remove the cover plates (Fig. 41/Pos. 1-3) from the column carriage (Pos. 4). Turn the column at 45°. Loosen the 4 screws (Fig. 41/Pos. 1). Bring the column in the right position with the corresponding adjusting screw (Pos. 2 or Pos. 3). Fasten again the 4 screws (Pos. 1) and remount the covering plates again.

3.2 Adjustment of the column in direction of rotation

The tube holding support has been aligned during manufacturing . If the alignment is not correct after assembly please align.

Remark:
Loosen the 4 screws (Fig. 42/Pos. 1) slightly. Adjust the column in the corresponding direction. Fasten the 4 screws (Pos. 1) afterwards tightly.

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Fig. 43

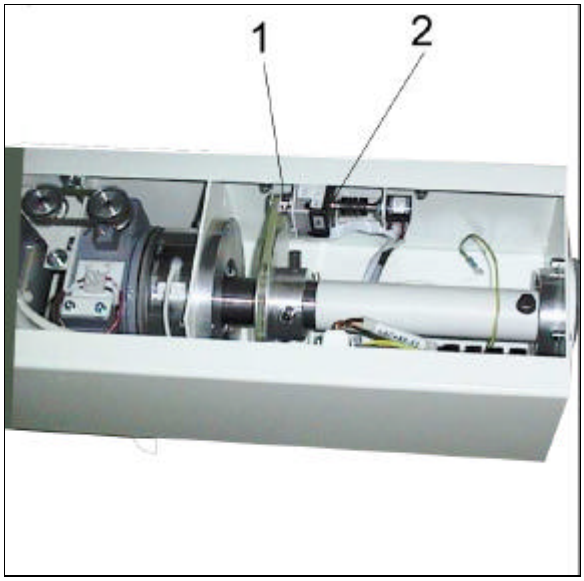

Fig. 44

3.3 Adjustment of the X-ray tube supportarm rotational axis

The rotational axis has been aligned during manufacturing. If the alignment is not correct after assembly please align.

Remark:
Loosen both lower fastening screws (Fig. 43/Pos. 1) and both security screws (Fig. 43/ Pos. 2). Perform adjustment with both adjustment screws (Fig. 43/Pos. 3) and the shortened 4 mm socket head cap key. Fasten afterwards the fastening screws and security screws.

3.4 Adjustment of the rotation detent (0° , 90 °)

The rotational axis has been aligned during manufacture. If the alignment is not correct after assembly please align.
Please follow chapter 3.9 first and activate Program 6.
Adjust the 0° position of the tube while loosen the rotation breake. Loosen the threaded pin (Fig 44/Pos 1), rotate the washer (Fig 44/Pos 1) until the yellow SID on the control board lights up and tighten the threaded pin afterwards. Save the value on control panel.

3.5 Adjustment of the table Bucky in the transverse direction

Loosen the screws (Fig. 45/ Pos. 1) from the four fastening strips. Adjust the Bucky transversely and fasten afterwards the four screws again.

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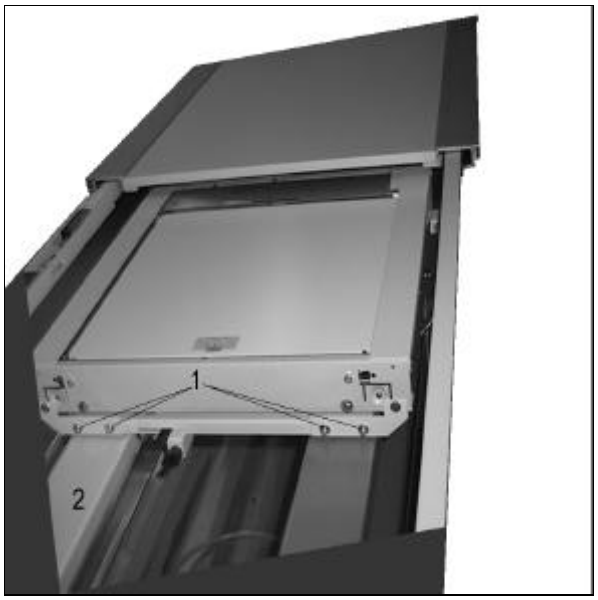

Fig. 45

Fig. 46

3.6 Adjustment of the vertical SID switch

Loosen and displace the trip cam (Fig. 46/Pos. 1) with both screws (Pos. 2) so that the micro switch in the vertical carriage will be activated. If necessary transpose the rail by one hole division. Tighten all screws again.

3.7 Exposure Height Adjustment Nominal value: table height 750 mm

To adjust exposure height, remove covers (Fig. 1/Pos. 2) and (Fig. 1/Pos. 5).
Drive to the focused exposure position, then drive to the desired exposure position.

Change setting value on trimmer -R4: cw = upwards, ccw = downwards.
LED -V14 is showing the reached exposure position.
The nominal value can be measured on -X16:9; approx. 8,6 V
Drive several times to exposure height and control exposure position; readjust if necessary.
The different exposure height when driving upwards resp. downwards can be balanced on trimmer -R5. Switch on the unit and perform functional tests as described in 4.2

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3.8 Table height control electronics

Adjust height potentiometer -R1 so that a reserve of 1/2 turn of the potentiometer in the top and in the bottom position remain.

Table adjustment max. at the top: max. table height 850 mm

Drive the table to the top and stop just before reaching the safety limit switch -S4.
Adjust with trimmer -R2 when LED V12 is just starting to give light.
Drive to top end position several times and correct - if necessary - on trimmer -R2 . (cw = upwards, ccw = downwards).
The nominal value can be measured on -X16:7; approx. 11V.

Table adjustment max. at the bottom: min. table height 850 mm

Drive the table to the bottom and stop just before reaching the safety switch limit switch -S4.
Adjust with trimmer -R6 when LED V16 is just starting to give light.
Drive to bottom end position several times and correct - if necessary - on trimmer -R6 .
(cw = upwards, ccw = downwards).
The nominal value can be measured on -X16:11; approx. 1,65V.

Exposure height: nominal value 750 mm

Drive to the focused exposure position, then drive to the desired exposure position.
Change setting value on trimmer -R4: cw = upwards resp. Ccw = downwards.
LED -V14 is showing the reached exposure position.
The nominal value can be measured on -X19:9; drive to approx. 8,6V exposure height several times and control exposure position; readjust if necessary.
The different exposure height when driving upwards resp. downwards can be balanced on trimmer -R5.
The nominal value can be measured on -X19:10; approx. 0,18V

Slow motion range adjustment

Speed range for slow motion movement can be adjusted on trimmer -R7, both for up and down as well as for exposure height. cw = increase of range; ccw = reduction of range. -V17s illuminated during slow motion movement.
Test Point: -X16:12 ; approx. 0,55 V

Slow motion time adjustment

Movement starts with slow motion speed; after the present period of time movement turns to quick motion. Time can be adjusted on Trimmer -R8. cw = longer period of time ccw = shorter period of time Slow motion period is shown on LED -V18.
Test point: -X16:13; approx. 0,5 sec.

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3.10 Centering of Bucky in table transverse direction

Attention: The Combi Elevator-2 will be prepared for Bucky Wall Stand (rail stand) „left“. Please see Fig. 49
Remove the 40 pin. DIL-plug for installation Bucky Wall Stand „right“ and re-insert rotated by 180°. Please see Fig. 50

Remark: The automatic control system is placed under the Bucky.

Drive Bucky carriage to the end position and leave a distance of 5 mm. Centre for that tube to Bucky.

Connect a multiple meter onto both test point -P1 and -P2 (-P1 is ground).

Adjust with poti -R1 the end positions until the SID -V1 lights up. Return afterwards the poti slightly back, so that the SID goes out.

Adjust with poti -R2 the centering until the SID -V3 lights up. Adjust afterwards -P2 to 0V +/- 1 mA.

Drive Bucky to the left end position and leave a distance of 5 mm. Centre for that tube to Bucky.

Adjust end position with poti -R4 until the SID -V2 lights up. Return afterwards the poti lightly back, so that the SID just lights up.

Adjust the centering with poti -R3 until the SID -V3 lights up. Adjust afterwards -P2 to 0V +/- 1 mA.

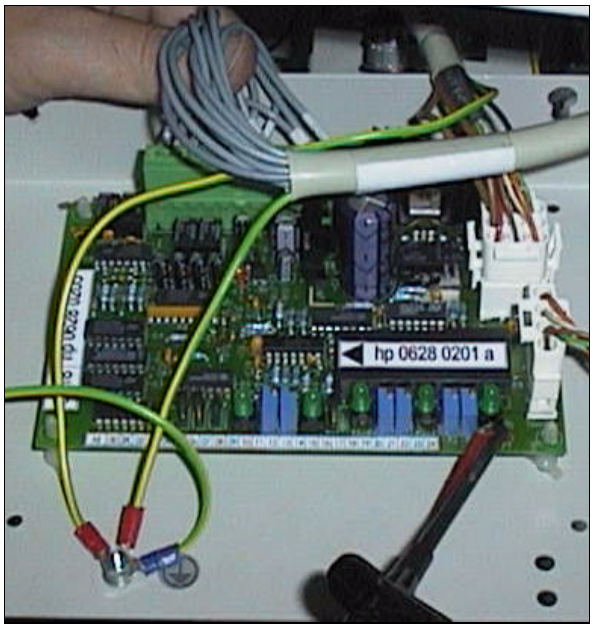

Fig. 49

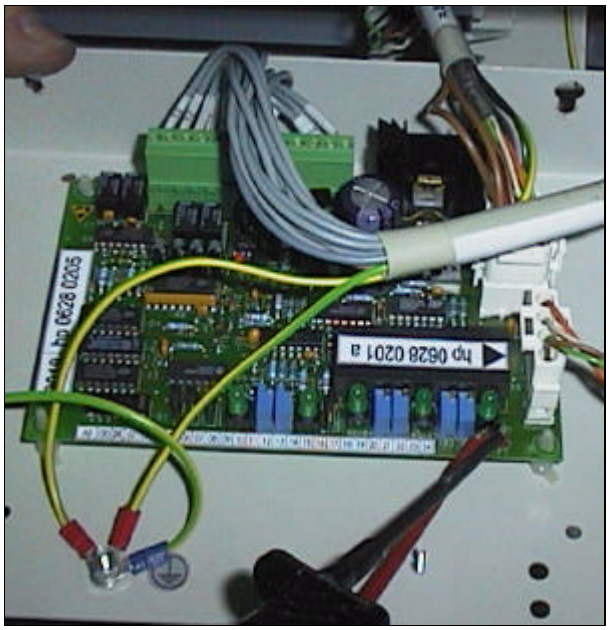

Fig. 50

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4. TECHNICAL MAINTENANCE

4.1 Mechanical and Electrical Tests

NOTE:
The maintenance schedule described below shall be done at 12- month intervals.
If functional tests during maintenance require power, disconnect the power as soon as the part has reached the new position, or after the appropriate functional test sequence.
Defective parts must be replaced by genuine spare parts according to spare part lists enclosed.
Use only non-acid grease for maintenance. Do not grease or oil ball bearings with sealing washers.

Preliminary work: Check column of damages or missing parts.
Check all cables upon damage especially on the fastening points.
If necessary replace or repair the defective components.
Check electrical cable loop of sufficient length.
Check all covers. If necessary replace damaged parts.
Check range of equipment movements on blocked objects. When collision danger appears, inform the user of all risks.

Tools: Usual assembly tools, standing ladder, torque balance key, liquid level, spring balance, feeler, cleansing agent, grease.

Preparations: Switch off equipment
Dismount bumper and stop (Fig.61/Pos. 1+2) at either end of the table top from profile rail (lateral).

Fig. 61

Fig. 62

Take out table top and lay aside securely.

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Dismount front cover (Fig. 62/Pos. 1+2)
Remove cover left and right (Fig. 64/Pos. 1).

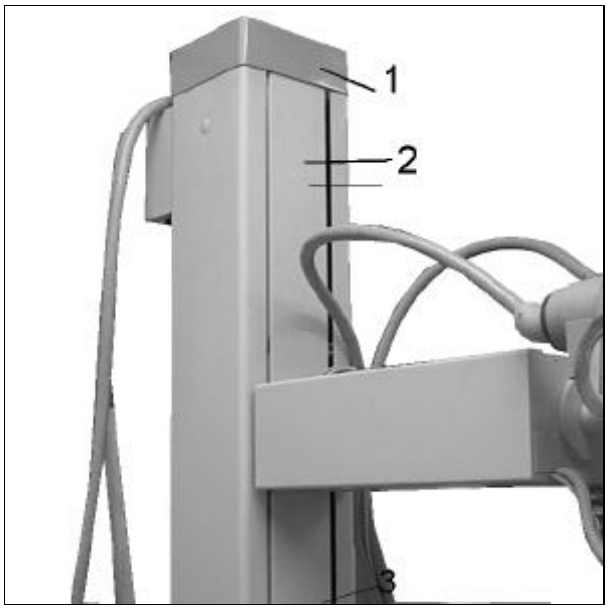

Fig. 63

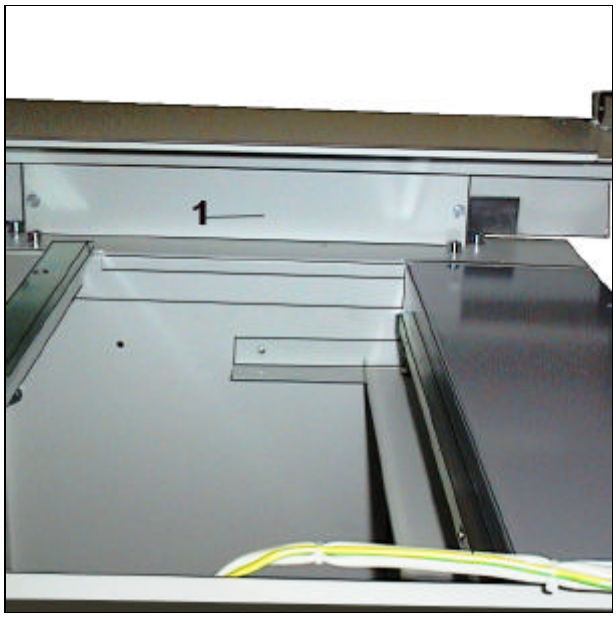

Fig. 64

Floor mounting: Check firmness of anchor bolts. Tighten, if loose, at a torque of 50 Nm (5 mkp).

Bucky: Check on smooth running over total travel range. Running noise ?
Determine defective bearings. Replace if necessary.
Clean guide rail and bearings and oil lightly.
Check and if necessary adjust eccentric bearing (Fig. 65/Pos. 1).
Correct adjustment: The bearings can still be rotated by hand.
Check bumpers (Fig. 65/Pos. 2) on firmness and damage.
Switch-on equipment. Check breake (Fig. 65/Pos. 3) and adjust if necessary.

Table frame: Clean left and right guide shafts (Fig. 66/Pos. 1) and grease lightly.
Switch-on equipment. Check performance breaks (Fig. 66/Pos. 2). Adjust if necessary.
Check bumpers on both sides (Fig. 66/Pos. 4) on firmness and damage.
Remount the caps (Fig. 64/Pos. 1) on the left and right side.

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Fig. 65

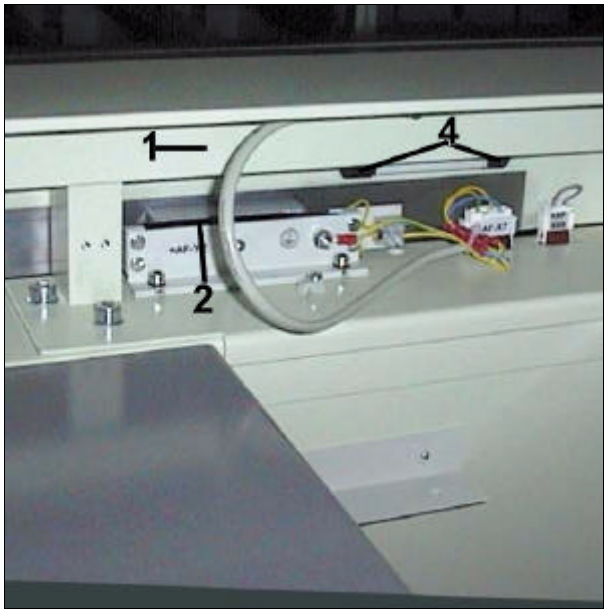

Fig. 66

Table top:

Check plastic rollers (Fig. 67/Pos. 5) for trace of wear. Replace and oil if necessary.
Clean and check all ball bearings for table top movements to assure smooth motion.
Replace and grease if necessary.
Clean guide profiles of the table top.
Insert table top. Move over total travel range. Running noise? Smooth running? Adjust bearings with eccentric (Fig. 67/Pos. 6) if necessary.
Switch-on equipment. Check performance of breake (Fig. 67/Pos. 7). Replace breake magnet if necessary.

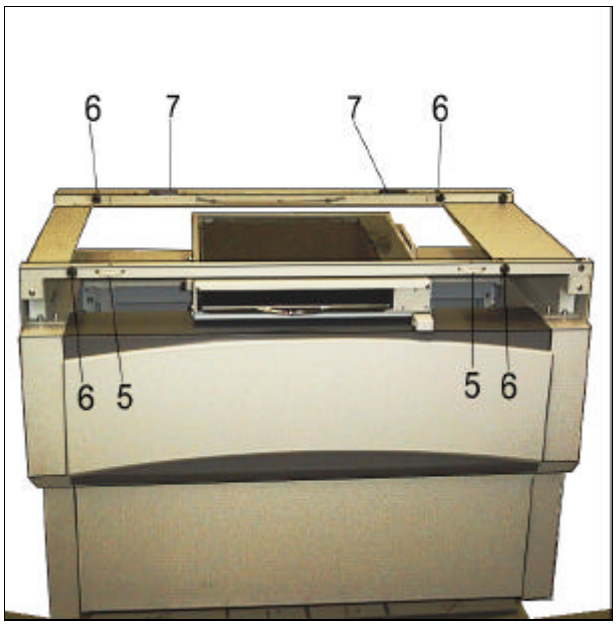

Fig. 67

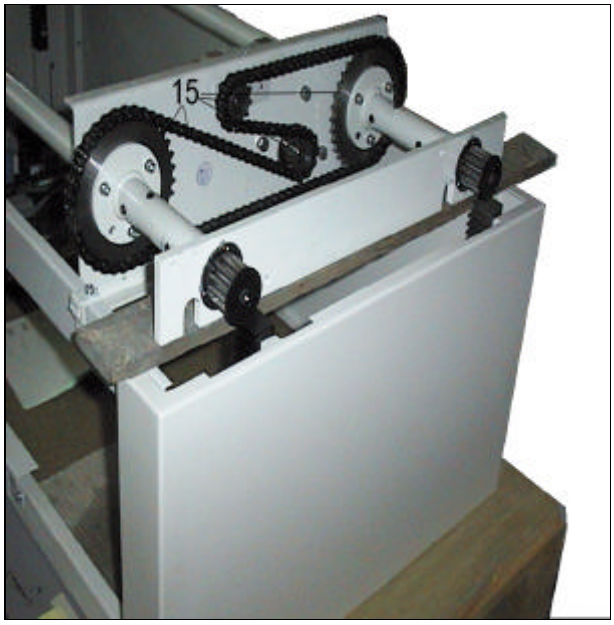

Fig. 68

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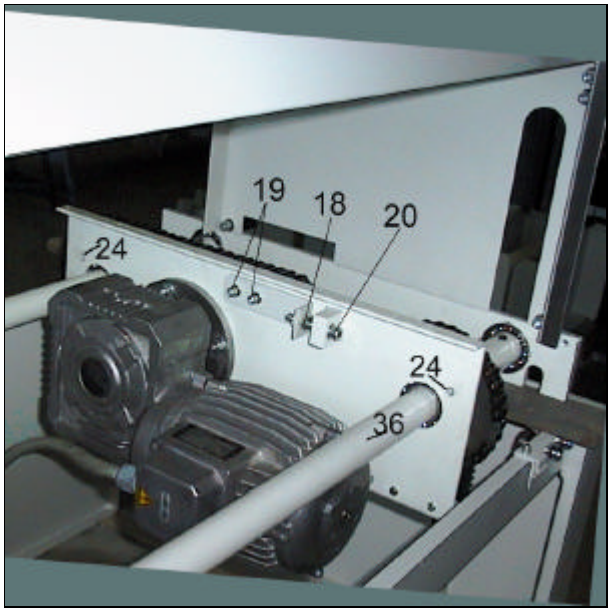
Remount bumper and stop (Fig 61/Pos. 1+2) at either end of the table top to profile rail sides.

Lift motor: Check chain and sprocket wheels (Fig. 68/Pos. 15) for trace and wear.

Perform a test run if necessary.
Check chain tension. It should be taut. Adjust if necessary.
Note: Loosen counter nut (Fig. 69/Pos. 18). Release screws (Pos. 19).
Adjust chain with clamping stud (Pos. 20). Counter clamping stud.
Tighten screws (Pos. 19)
Check all motor suspension bolts on firm seating.



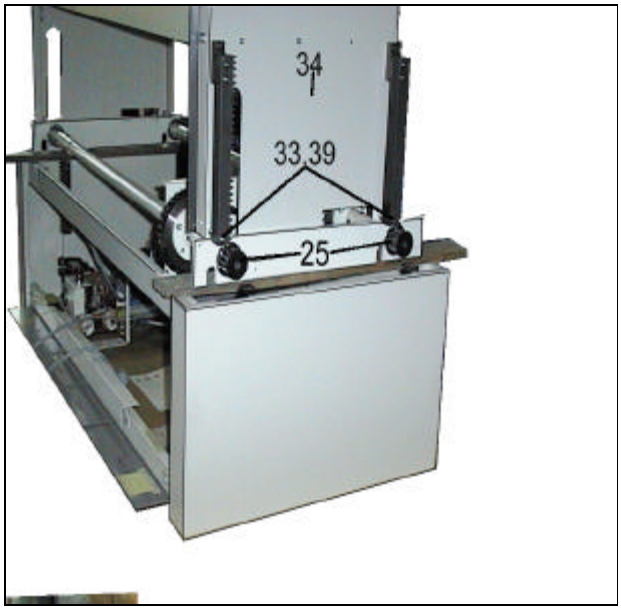


Fig. 69 Fig. 70

Toothed Racks, Drive Shafts, Pinions:

Switch on the unit. Run through entire travel range several times.
Listen for hard knocking noises. Switch-off the unit. Check the 8 racks (Fig. 70/Pos. 25) and 4 pinions for wear. Use a mirror for visual checking.
Any hard knocking running noise or visible damage ?
If not, reggaes toothed racks and all bearings. Continue with maintenance for the Bucky carriage.

If there are knocking noises or mechanical damage:
Remove left plugs and right plugs.
Remove 4 ISK each on either side (Fig. 71/Pos. 28).
Lift off table frame (Fig. 71/Pos. 29).
Remove plug (bottom of Bucky carriage) (wall side).

Remove plug on component board.
Remove cable strain relieve.
Lift off outer jacket (Fig. 69/Pos. 32) by pulling upward uniformly. Do not use force !
Caution: The Bucky carriage is not locked !
Remove 4 screws (Fig. 70/Pos. 33) and bushings.

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Crank up jacket support (Fig. 70/Pos. 34) all the way up and lift it off with drive assembly (Fig. 69/Pos. 36). Arrange wooden bars (Fig. 22). Place support / drive assembly on bars.
Continue drive until the crank up jacket can be removed from drive assembly.
Toothed racks, pinions and drive are now fully accessible. Replace defective parts.

Note:

Before removing the chain or the sprocket wheels, insert the index pins (Fig. 69/Pos. 24) into drilled holes (Fig. 69/Pos. 24) on motor support and sprocket wheel flange.

Do not forget to remove the index pins afterwards.

Reassemble:

Place the jacket support (Fig. 70/Pos. 34) with toothed racks onto the pinions.
Crank in the jacket support until a measure of □ 12 mm (Fig. 26, detail) is reached.
Attach complete support/drive assembly to toothed racks of table base frame (Fig. 23).
Crank in assembly approx. 10 cm. Insert 4 bushings (Fig. 72/Pos. 39) and fasten 4 screws (Fig. 70/Pos. 33).

Component board:

Disconnect power (fuse).
Check with voltmeter that power is really off !
Tighten set screws of all wire connections.
Check all components on firm seating. Tighten screws if necessary.

Note:

For better access the component board (Fig. 72/Pos. 30) together with the foot switches (Pos. 48) can be pulled out.
For this, loosen 2 screws (Fig. 72/Pos. 43). Pull out forward (arrow) complete component group.

Fig. 71

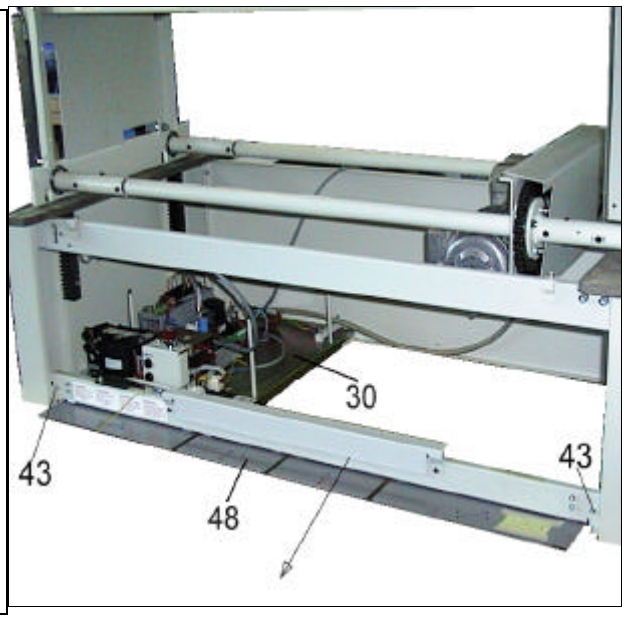

Fig. 72

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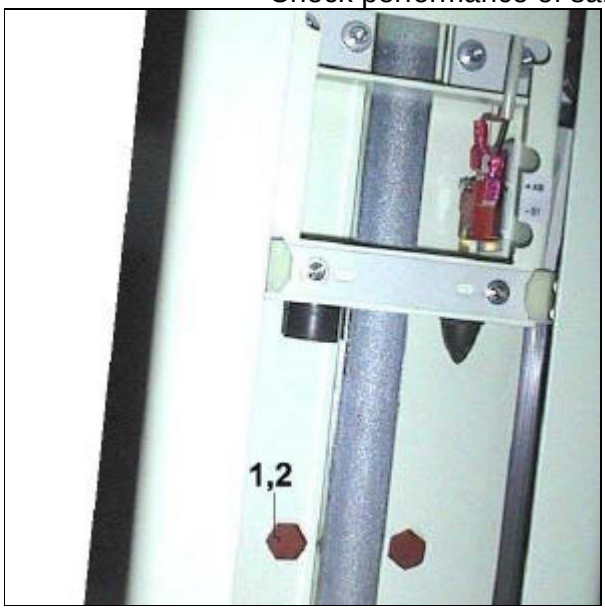
Vertical carriage: Clean guide rail of the column and runners of the vertical carriage. Check on damage and grease lightly. Check on smooth running over entire travel range. Running noise ?
Determine defective bearing. Replace if necessary.
Check performance of safety breake.



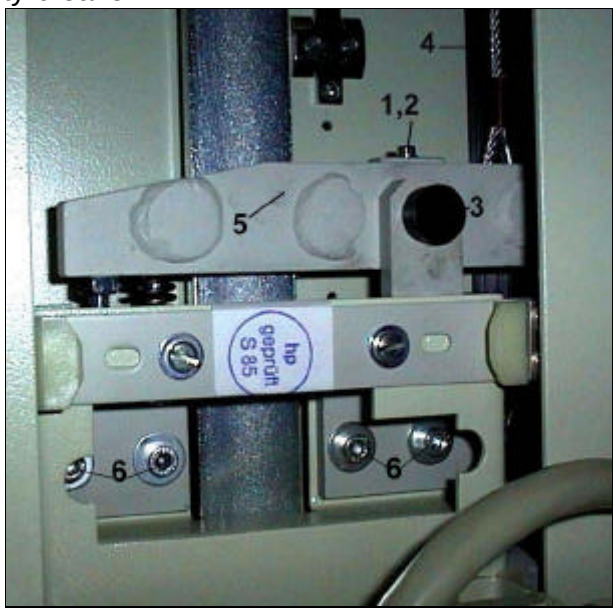
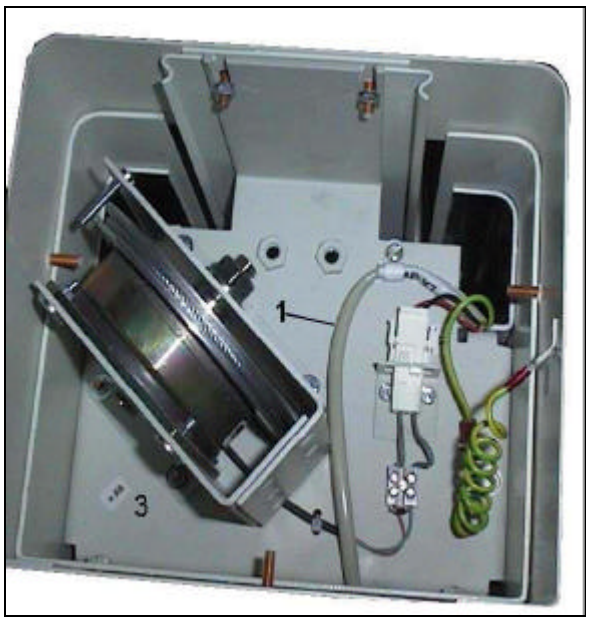


Fig. 73 Fig. 74

Note: Drive vertical carriage fully down until the threaded bore-hole (Fig. 73/Pos. 1) of the counterbalance is coincide with bore-hole in the column. Tighten counterbalance with screws M8 (Fig. 73/Pos. 2) and corresponding washers. Lift vertical carriage some cm and release only if vertical carriage is suspended to the safety breake. Lift vertical carriage again, pull through safety breake, loosen on rope (Fig. 74/Pos. 4) to the head side. Release slowly vertical carriage. Dismount screws (Fig. 74/Pos. 2).



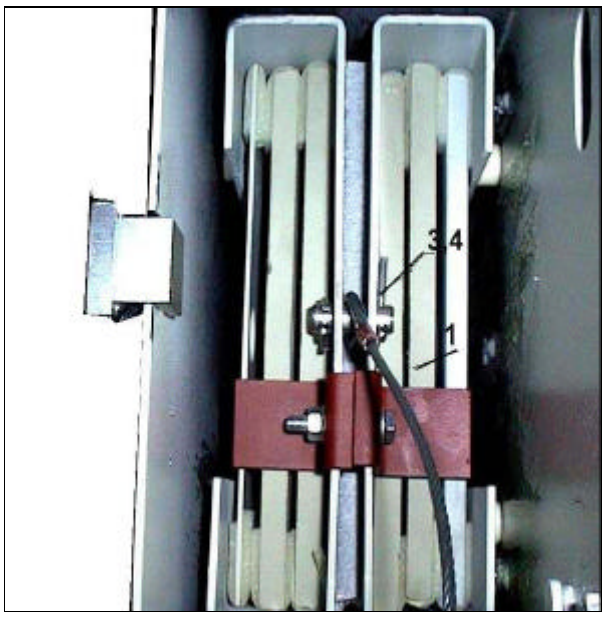


Fig. 75 Fig. 76

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Clean steel rope (do not use fat solvents) and check for damage with cotton waste. Check on smooth running over entire travel range. At the slightest sign of damage - Remove the Equipment for use until the defective cable has been replaced - inform the user directly. Further use of the equipment could endanger the security of patient and user. Do not use the equipment until the defective rope has been replaced.

Attention: **The exchange of the rope has to be done at least every 3 years**

Note:
Drive vertical carriage fully down until the threaded bore-hole (Fig. 73/Pos. 1) of the counterbalance is coincide with bore-hole in the column. Tighten counterbalance with screws M8 (Fig. 73/Pos. 2) and corresponding washers.
Lift vertical carriage approx. 30 cm and release only if vertical carriage is suspended to the safety breake. Lift head part (Fig. 75/Pos. 1) to the top and tighten with a cord to the column.
Dismount steel rope on counterbalance (Fig. 76/Pos. 3) after careful removal of the security washers (Fig. 76/Pos. 3) and bolts (Pos. 4).
Support vertical carriage with the wooden lath. Remove screws (Fig. 74/Pos. 1) and security plate (Pos. 2).
Release the lever of the safety breake (Fig. 4) in direction of the compression spring and pull out to the front the bolt (Pos. 3).
Release rope from the safety breake. Remove from the head part the safety ring with safety nippers and dismount rope after removal of both security screws (Fig. 77/Pos. 1).
Insert new rope in the head part and fasten to safety breake and counterbalance. Insert again the head part, pay attention to correct fitting.
Remount lever of the safety breake to vertical carriage.
Lift again the vertical carriage slightly while pulling through safety breake of the rope to the frontal side respectively releasing while pushing the safety breake against the compression spring. Then let off vertical carriage slowly. Dismount screws (Fig. 73/Pos. 2).
Check bearing play of the runners.

Note:
Put a paper strip (thickness of 0,1 mm) between guide surface and opposite bearing. If necessary press the opposite bearing with a screw turner after removal of the screw (Fig. 59/Pos. 1) and tighten the screw again.

Remark:
The opposite bearings must be rotatable by hand over the entire travel range.

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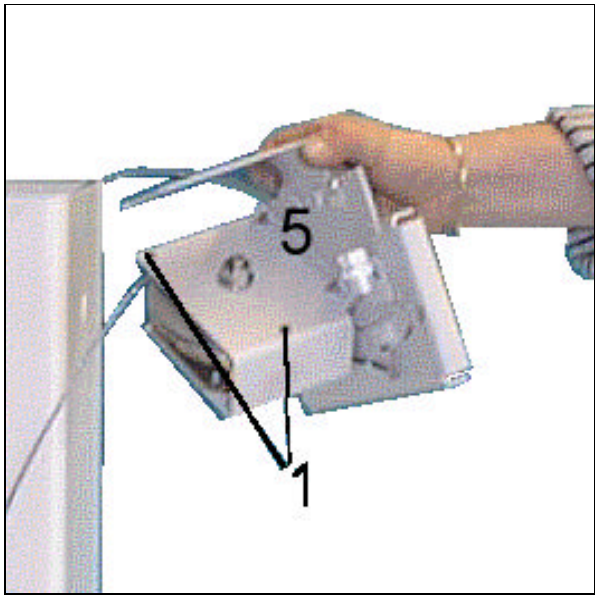

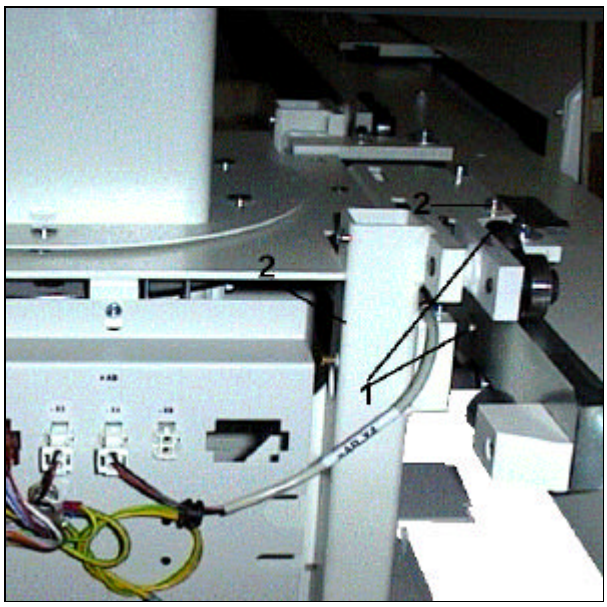

Fig. 77

Fig. 78

Vertical breake:

Remove abrasion of the magnet breake (Fig. 75/Pos. 3). Check air gap of the magnetic clutch with feeler. Nominal value: 0,3 - 0,5 mm. Check breake power over the entire travel range. Should be min. 150 N. The air gap can be adjusted when adding or removing washers.

Note:

Drive vertical carriage fully down until the threaded bore-hole (Fig. 73/Pos. 1) of the counterbalance is illiquid with bore-hole in the column. Tighten counterbalance with screws M8 (Fig. 73/Pos. 2) and corresponding washers. Lift vertical carriage approx. 30 cm and release only if vertical carriage is suspended to the safety breake. Lift head part (Fig. 75/Pos. 1) to the top and tighten with a cord to the column. Dismount steel rope of the counterbalance (Fig. 76/Pos. 1) after carefully removal of the splint pin (Fig. 76/Pos. 3) and bolts (Pos. 4). Dismount steel rope after removal of both security screws (Fig. 77/Pos. 1). Dismount guide block (Pos. 5) and adjust difference with washers. Remount guide block. Insert head part, pay attention to correct fitting. Lift again the vertical carriage slightly while pulling through safety breake of the rope to the frontal side respectively releasing while pushing the safety breake against the compression spring. Then release the vertical carriage slowly. Dismount screws (Fig. 73/Pos. 2).

Column carriage:

Clean runners of column carriage. Check upon damage and grease slightly.

Check smooth running over entire travel range. Running noise ? Determine defective bearing. Replace if necessary.

Ceck tight fit of drive block and gear belt tension.

Check bearing play of the runners.

Note:

Put a paper strip (thickness of 0,1 mm) between guide surface and opposite bearing. If necessary press the opposite bearing with a screw

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turner after removal of the screw (Fig. 79/Pos. 1) and tighten the screw again (Fig. 78/Pos.2).

Remark:
The opposite bearings must be rotatable by hand over the entire travel range.
Switch on equipment. Check function of breake (Fig. 79/Pos. 4). Adjust if necessary.
Note:
Loosen screws (Fig. 79/Pos. 5) and displace magnet angle until the play between breake rail and magnet is 0,2 mm. Tighten screws again.

Rail stand:

Clean upper and lower guide rail. Check on damage and grease slightly. Check end stops on damage and check fitting. Check column stand with air level over the entire travel range. Adjust variations while adding spacers under or between.

Cleaning: Dirt accumulation which are not accessible for cleaning staff must be removed during maintenance work.

Soak contrast agent with water and remove.

After completion of the maintenance work clean all dirt accumulations.

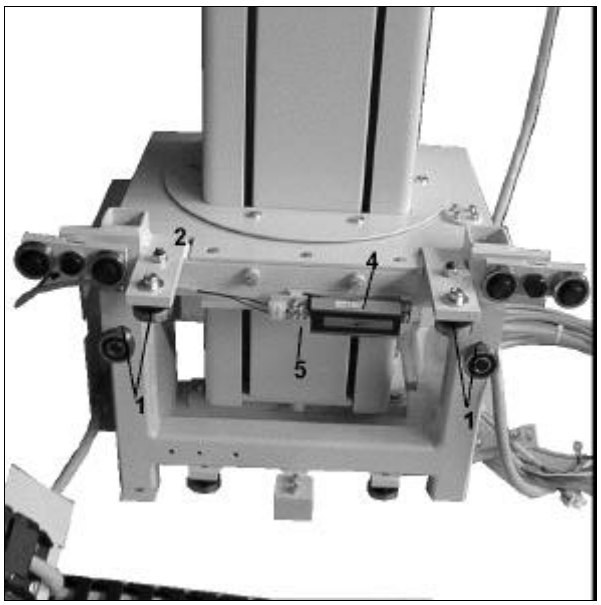

Fig. 79

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4.2 Functional Tests

Vertical Travel Mechanism:

- Turn on unit. Check performance by raising/lowering mechanism over en tire travel range:
- Automatic stop in top/ bottom end positions as well as in present exposure position?
- Smooth starting and slowing down of Lift motor?
- Accurate performance of Foot switch ?
- Accurate performance of safety switch?
- Proper spring suspension of switches?
- No brushing of outer jacket against base panelling?
- No automatic lowering at load?

Table Top:

- Check performance of floating by travelling table top over entire range both longitudinally and transversely:
- Moving smoothly? Running without noise?
- Bumper stops for longitudinal/transverse movements?
- No tendency to self-positioning?
- Accurate braking in working position?
- Accurate releasing of breake?
- Accurate performance of foot switch resp. of safety switch?
- Proper spring suspension of switches?

Bucky Carriage:

- Check performance of Bucky carriage over entire travel range.
- Moving smoothly?
- Running without noise?
- Accurate breaking in any working position?
- Accurate releasing of breake?
- Smooth cassette insertion?
- Smooth operation of cassette clamping device?
- Function of motorised centering ?

Tube stand carriage:

- Check performance of tube stand carriage over entire travel range.
- Moving smoothly?
- Running without noise?
- Accurate breake in any working position?
- Accurate release of breake?

Tube stand:

- Check performance of tube stand over entire swivel rage.
- Moving smoothly?
- Running without noise?
- Accurate catching of column catch?

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Vertical carriage:

- Check performance of vertical carriage over entire travel range.
- Moving smoothly?
- Running without noise?
- Accurate breaking in any working position?
- Accurate releasing of breake?
- Smooth running of robe return pulley?
- Twist-free running of robe?

Control arm:

- Check function of SID´s
- Do they light up after the function has been fulfilled?
- Tight fitting of control arm onto support?
- Does the goniometer show the correct value?

Rotation of X-ray tube*:*

- Check performance of entire rotation range of X-ray tube
- Moving smoothly?
- Running without noise?
- Accurate breaking in any working position?
- Accurate releasing of breake?
- Check precision of 0° and 90° position.

Electric

- Check all connections upon damage
- Proper fitting of all plug connections?
- Accurate connection of all strain relieves?

Exposure Release:

- Drive to exposure position. Be careful to observe radiation protection measures.

- Trigger exposure.
- Exposure taken ?
- Change height to a position outside exposure position.
- Try exposure.
- No exposure?

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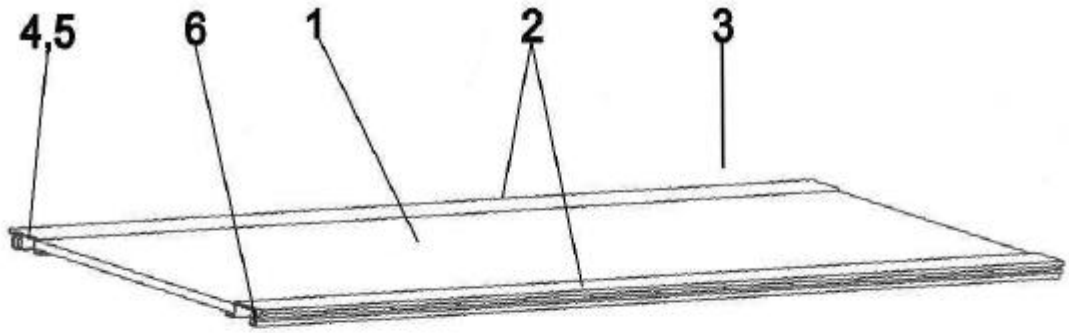
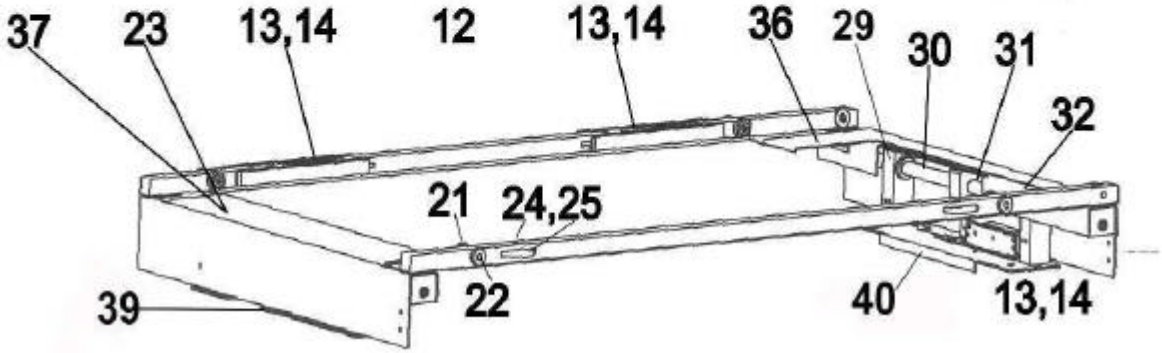
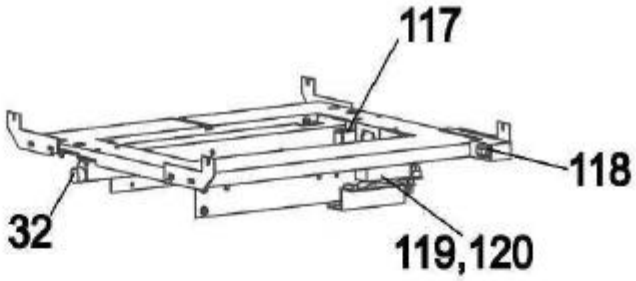
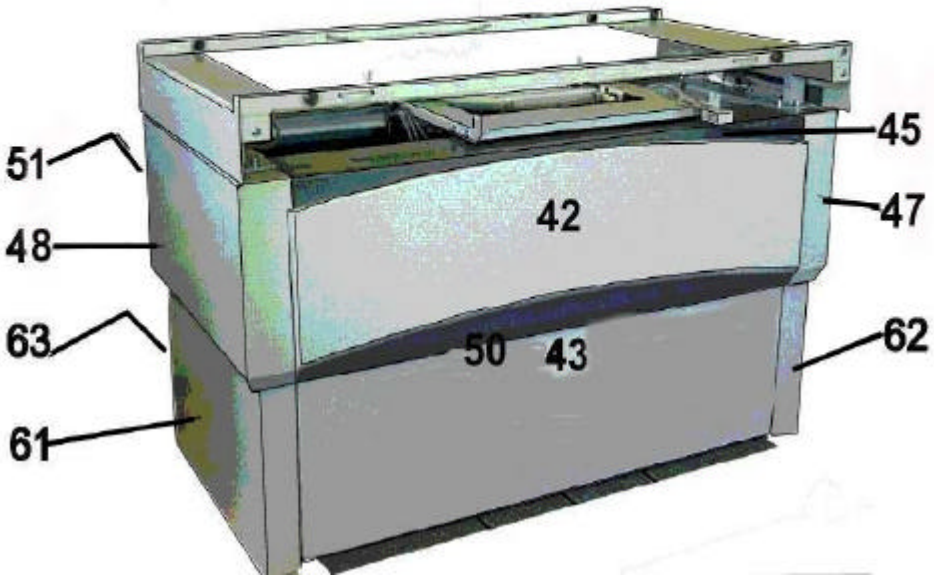
4.3.1 Spare Parts Table 1









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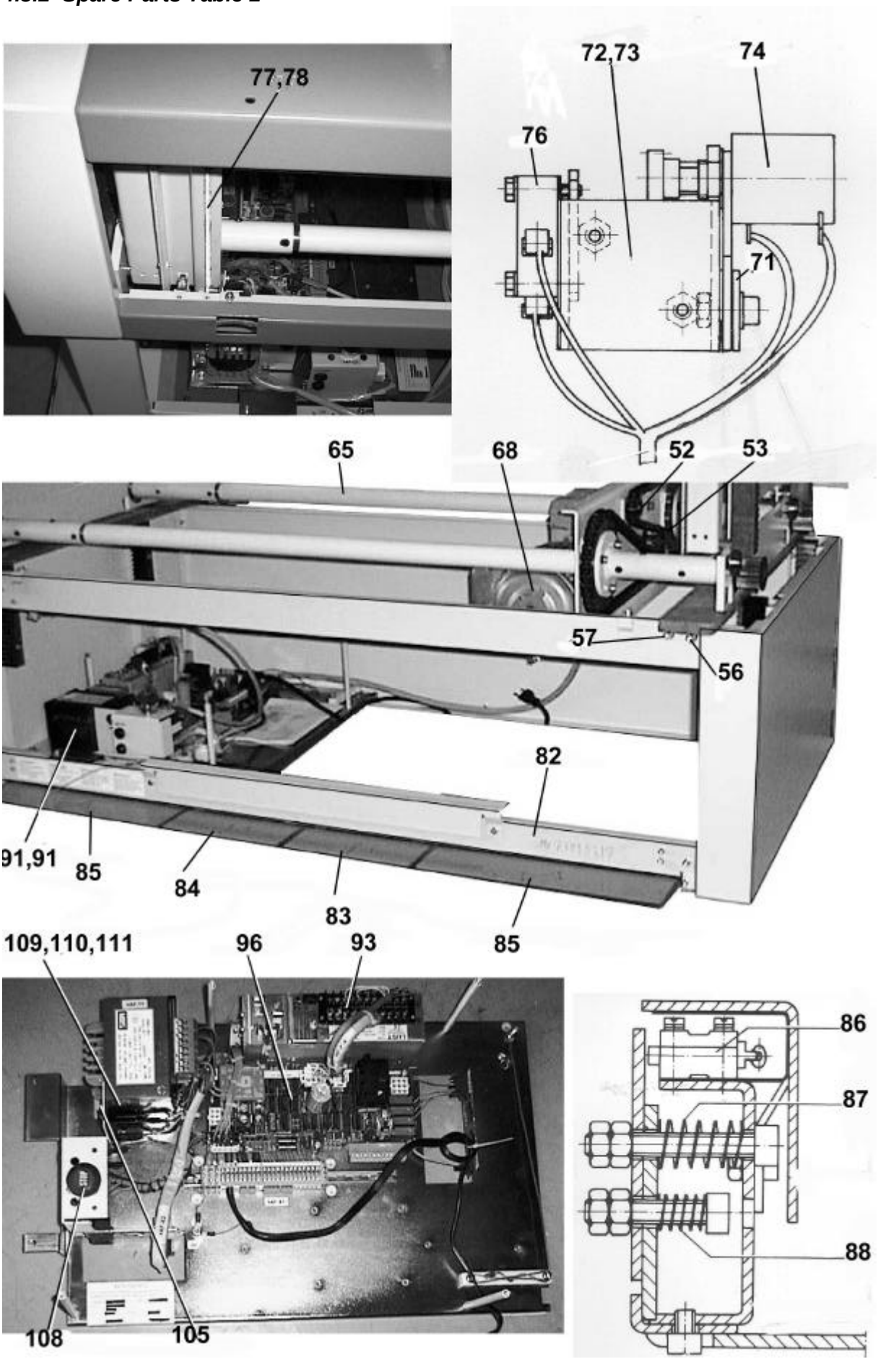
4.3.2 Spare Parts Table 2



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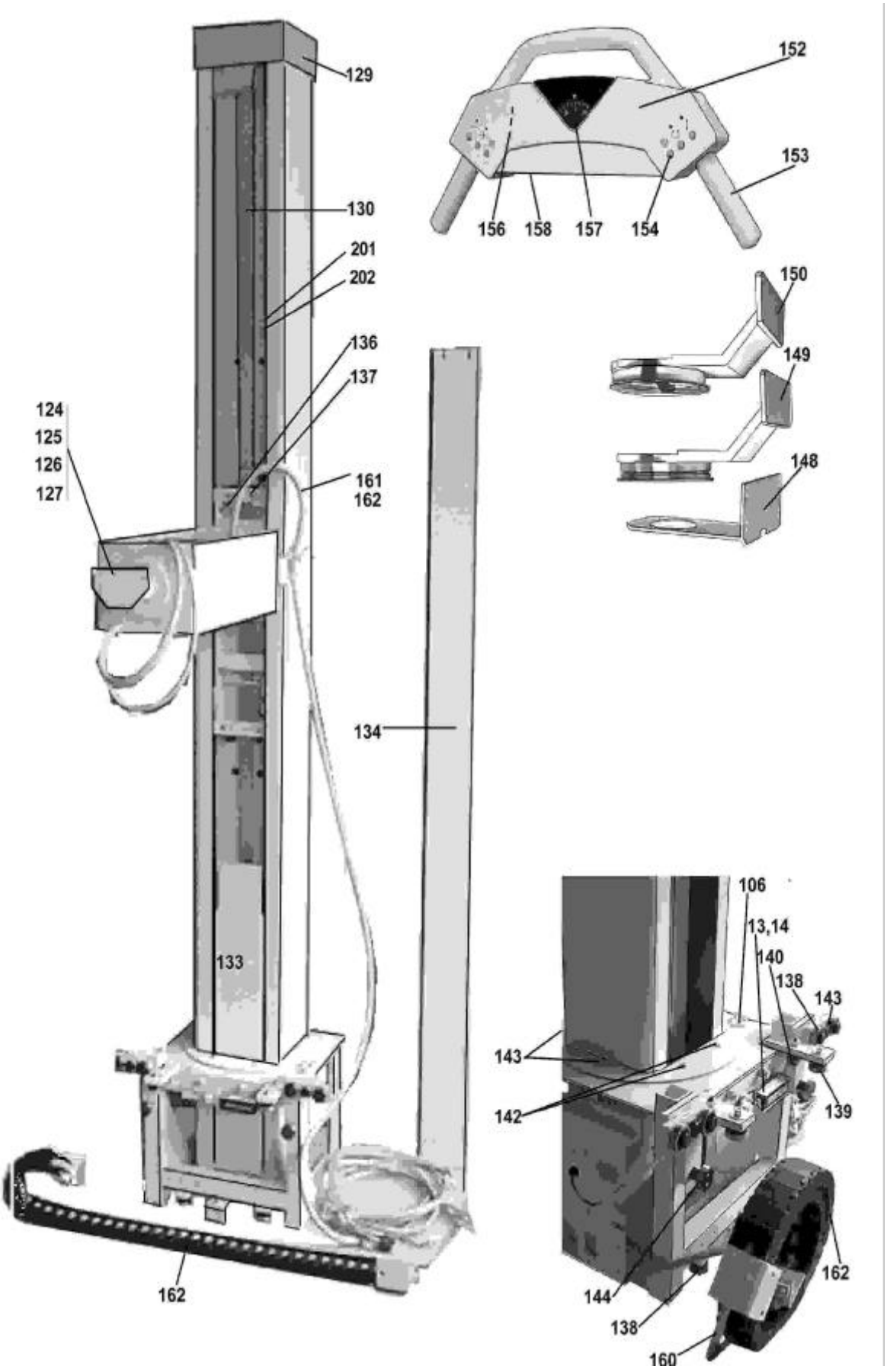
4.3.3 Spare Parts Column 1



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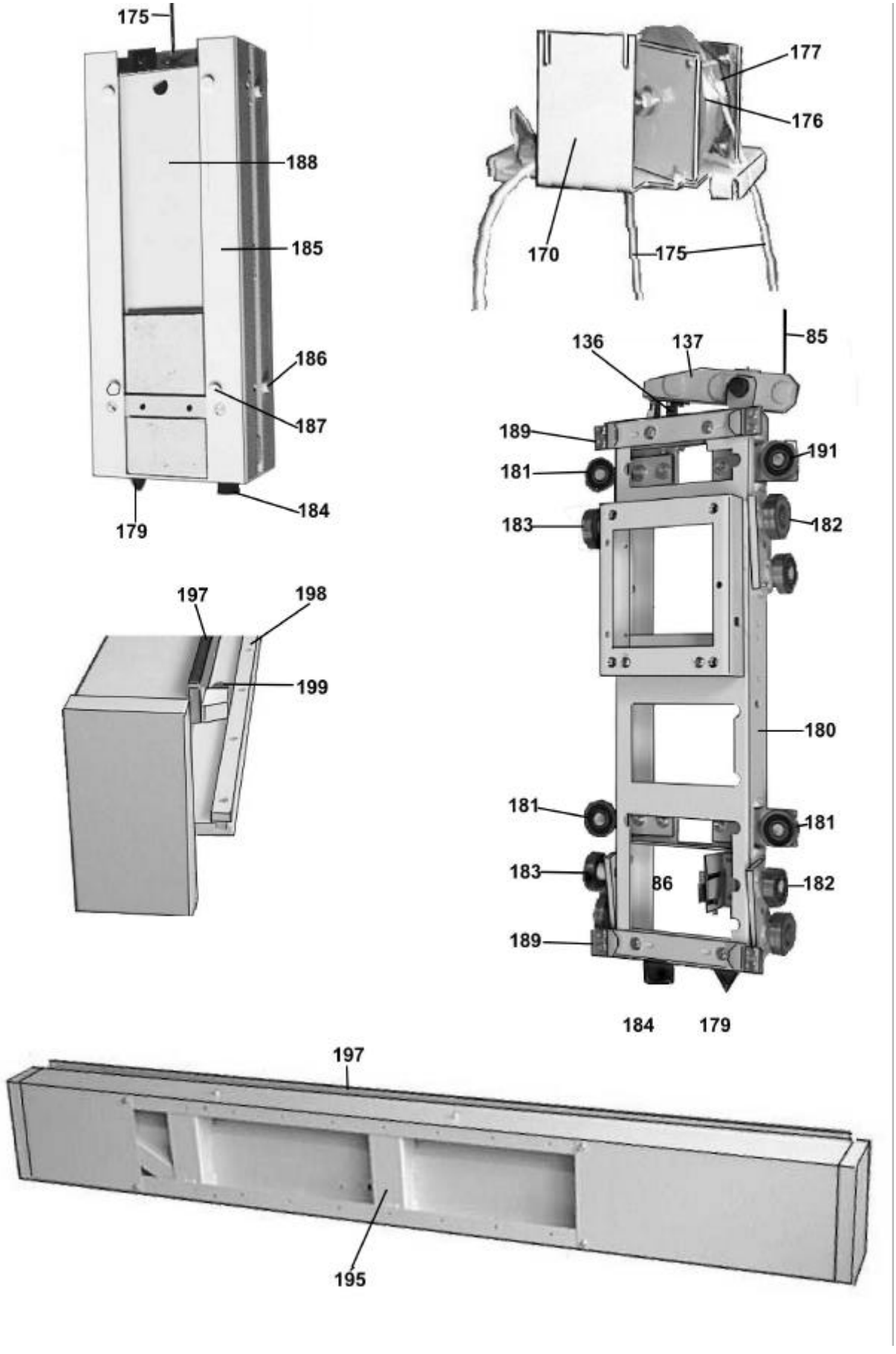
4.3.3 Spare Parts Column 2



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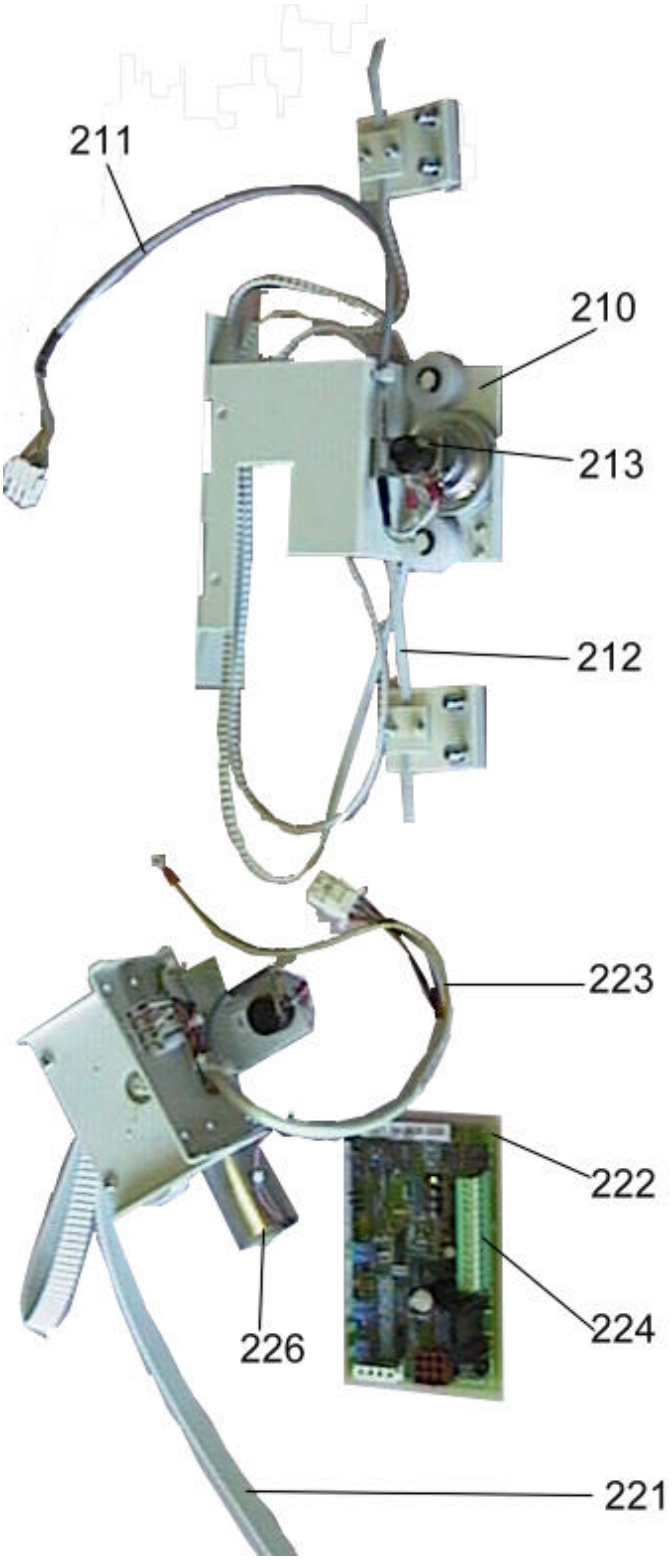
4.3.3 Spare Parts



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4.4 Spare Parts List

Description / Order No.

NOTE:

Defective parts must only be replaced by genuine spare parts as listed below. For shipment of spare parts, always specify serial number of equipment and full ordering number(s).
Parts or part assemblies may only be replaced by the manufacturer or parties expressly authorised. See also chapter on "Safety Procedures".

Pos.	Designation	Ordering No.
1	Table top	0622 0548
2	Profile rail	0622 0549
3	Frame	0622 0541
4	Stop	0622 0550a
5	Bumper	0005 0164g
6	Stop	0622 0550b
7		
8		
9		
10		
11		
12	Frame	0622 0501
13	Magnet	0006 0603
14	Spring	0622 0531
15		
16		
17		
18		
19		
20		
21	Bearing with bushing	0622 0556
22	Bearing with eccentric	0622 0555
23	Bearing with bushing	0622 0557
24	Shaft	0622 0515
25	Plastic roller	0622 0514
26		
27		
28		
29	Bearing block	0622 0085a
30	Guide shaft	0622 0528
31	Bearing Block	0622 0522b
32	Bumper	0005 0108
33	Bearing LBAR 20	0005 0191a
34	Snap ring 32x1.5 DIN 471	2200 0223
35		
36	Cover	0622 0523
37	Cover	0622 0526
38		

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Pos.	Designation	Ordering No.
39	Bridge	0627 0828a
40	Bridge	0627 0828b
41		
42	Cover panel, Front	0627 0845
43	Cover panel	0627 0839a
44		
45	Bridge, Front	0627 0834
46	Bridge, Rear	0627 0156a
47	Outer Side Panel	0627 0830a
48	Outer Side Panel	0627 0830b
49		
50	Bidge, Front	0627 0835
51	Cover, rear	0627 0836
52	Track-connecting tool	0627 1244
53	Chain	2300 0027
54		
55		
56	Bearing with eccentric Bushing	0627 0119
57	Bushing	0627 0140
58	Cable Protection Cover	0627 1265
59		
60		
61	Side cheek	0627 1155a
62	Side cheek	0627 1155b
63	Back cover	0627 1152
64		
65	Toothed Rack Drive II	0627 1200
66		
67		
68	Drive Motor (230 V) comp.	0627 1205
69		
70		
71	Terminal	0627 1334
72	Height Test Unit	0627 1130
73	Holder for Potentiometer	0627 1133
74	Potentiometer, cpl.	0627 1136
75		
76	Switch with Roll	0006 0616ba
77	Rackholder	0627 1320
78	Toothed Rack	0627 1330
79	Crank Handle	0627 1325
80	Eccentric Bushing Comp.	0627 0034
81		
82	Pedal, Comp.	0627 1140
83	Pedal, Short, "Up"	0627 1148
84	Pedal, Short, "Down"	0627 1146
85	Pedal "Breake"	0627 1144
86	Switch	0006 0079a
87	D-spring	0005 0042s
88	D-spring	0005 0042t
89		

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Pos.	Designation	Ordering No.
90	Transformer (230 V)	0627 1470
91	Transformer (115 V)	0627 1465
92		
93	Frequency Converter	0627 1461
94		
95	Component board cpl.	0627 1450
96	Relay Board	0627 1460
97		
98	Motor Relay	0006 0667
99	Relay	0006 0286b
100		
101		
102		
103		
104		
105	Push button	0006 0084a
106		
107	Cable tie	0322 0076
108	Service Switch	0006 0260
109	Fuse holder	0006 0144
110	Cap for 5x20	0006 0152a
111	Cap for 6,3x32	0006 0152b
112		
113		
114	Bearing with eccentric	0632 0653
115	Bearing with bushing	0632 0657
116		
117	Bridge plug	0632 0307
118	Brake complete	0632 0615
119	Magnet	0006 0603
120	Spring	0632 0418
121		
122		
123		
124	Tube support arm 100 mm	0125 0815a
125	Tube support arm 127 mm	0125 0815b
126	Tube support arm GE	0125 0815d
127	Tube support arm Toshiba	0125 0815e
128	Tube sattle	0125 0780
129	Head piece weld	0125 0580
130	Strip	0125 0550
131		
132		
133	Cover bottom	0370 0138
134	Cover top	0125 0570
135		
136	Spring	0005 0159
137	Safety breake II	0125 0733
138	Bearing with eccentric	0125 0374
139	Bearing with eccentric	0125 0369a
140	Bearing with bolt	0125 0369b

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Pos.	Designation	Ordering No.
141	Bolt	0125 0383
142	Bearing with bolt	0125 0376
143	Bearing with eccentric	0125 0377
144	Bearing with eccentric	0125 0373
145		
146		
147		
148	Control housing	0322 0629
149	Control housing	0322 0270
150	Control housing	0322 0273
151		
152	Control handle assembly	0125 1000a
153	Handle	0125 1008
154	Button	
155		
156	Print board	0125 1020
157	Angle indicator	0125 1010
158	Table measure	0125 1019
159		
160	Cable table	0125 1607a
161	Cable column	0125 1606b
162	Energy chain	0006 0686
163		
164		
165		
166		
167		
168		
169		
170	Column top assembly	0125 0650
171		
172	Scale cm	0008 0106
173	Scale inch	0008 0107
174		
175	Wire rope	0125 0662
176	Wire rope pulley	0125 0659
177	Solenoid bracket	0323 0555
178		
179	Parabolic spring	0005 0103a
180	Vertical carriage	0125 0701
181	Sole plate	0125 0725
182	Bearing balance	0125 0720a
183	Bearing balance	0125 0720b
184	Bumper	0005 0164h
185	Counterweight	0125 0601b
186	Glide block	0125 063
187	Glide block	0125 063
188	Weight plate	0125 0623
189	Profile	0370 0137

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Pos.	Designation	Ordering No.
190		
191		
192		
193		
194		
195	Rail assembly	0125 0115
196		
197	Rail	0125 0202
198	Floor guide rail	0125 0136
199	Stop	0125 0137
200	Switch	0006 0184
201	Wiper	0322 0131
202	Guide for wiper	0322 0130
203		
204		
205		
206		
207		
208		
209		
210	Travel range assembly	0628 0210
211	Cable =AG-R2	0628 0208
212	Gear belt	0005 170h
213	Potentiometer	SI7736606
214		
215		
216		
217		
218		
219		
220	Drive block comp.	0502 0220a
221	Gear belt	0502 0214b
222	Bucky Motion controller	0628 0205
223	Cable =AG+A1-X2	0628 0207
224	Cable =AG+A1-X1	0628 0206
225		
226	Gear motor	0006 0733b
227	Return pulley	0323 0648
228		
229		

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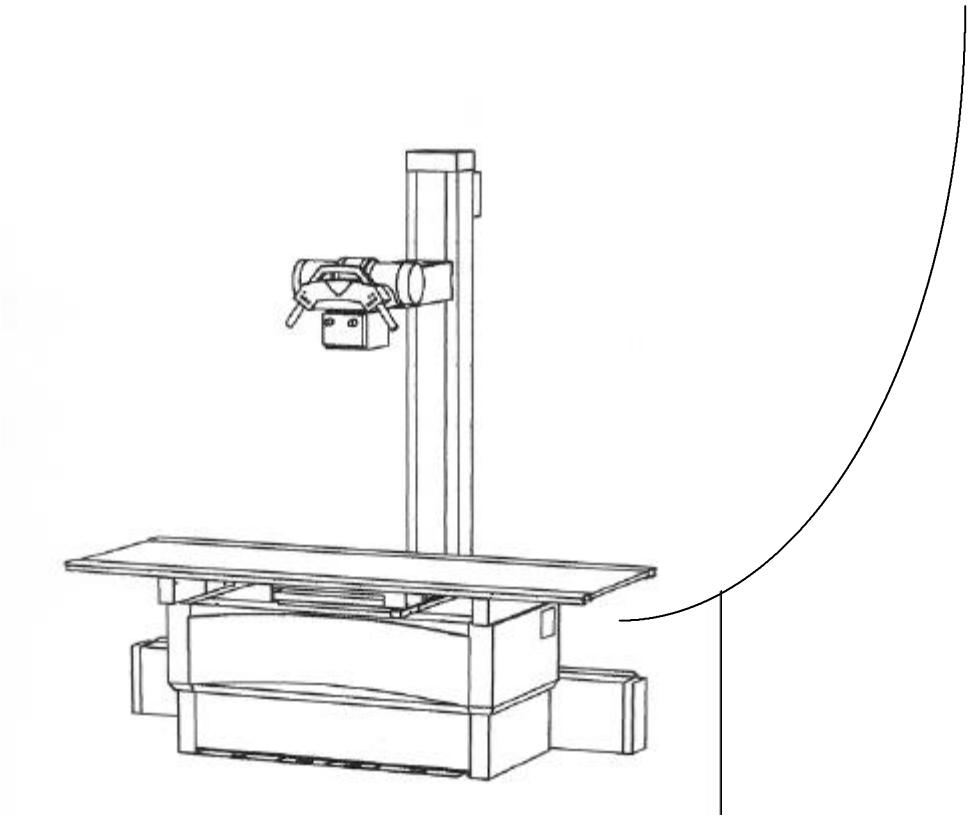
4.5 Maintenance Documentation

Name Plate Location:



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4.6 Maintenance Certificate

The maintenance according to the attached maintenance instructions has been carried out. Any parts replaced were original spare parts as shown on the list.

Replaced parts (List item no. only)

Date Name of company Signature

Replaced parts (List item no. only)

Date Name of company Signature

Replaced parts (List item no. only)

Date Name of company Signature

Replaced parts (List item no. only)

Date Name of company Signature

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Notes:

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